

# Presentations at Conference Sessions, Meetings, Workshops



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## **Presentations Organized at the National COSEE Network Level**

The COSEE Network has organized a presence at national science and education society meetings in order to increase the visibility of COSEE within target audiences. This takes the form of presentations by National COSEE Network (NCN) members, a COSEE booth in the conference or meeting exhibit hall, and a social activity (luncheon, reception) that features ocean scientists. Several national conferences were identified as serving high priority audiences, including:

- Ocean Scientists (American Geophysical Union, Ocean Sciences)
- Students Underrepresented/Underserved in STEM disciplines and their K-16 teachers (Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS))
- Science Education and Public Outreach (National Science Teachers Association)

The NCN established a presence at the **National Science Teachers Association (NSTA) National Conferences** beginning in Boston 2008, followed by New Orleans 2009, and then Philadelphia 2010. Over the three years, COSEE has grown from a small booth in the exhibit hall to an island booth with strategic placement on the floor. The number of people stopping by the booth has increased from 200 to over 600 teachers. The COSEE presence has grown from two sessions to an entire day of programming, including a luncheon featuring an ocean scientist as a luncheon speaker.

In 2009, COSEE established a presence at the SACNAS and AGU conferences, and in 2010 the Ocean Sciences meeting. A similar format was employed in which CCO and COSEE Center staffs engage people with the COSEE Network and broker connections with COSEE Centers based on the person's interests and needs. The following print materials are available in the COSEE Booth:

- COSEE Center one page profiles
- COSEE brochures
- COSEE programs at NSTA flyer
- Ocean Literacy brochures
- Ocean Literacy Scope and Sequence CDs and flyers
- Climate Literacy brochures
- Hands-on Physical Oceanography Books (TOS/COSEE publication)
- COSEE Summer Teacher Professional Development and Research Experiences
- Materials from individual COSEE Centers
- Discovery of Sound in the Sea (DOSITS) CDs
- Ocean Gazing Podcast CDs

In addition, COSEE branded give-aways included:

- Eco tote bags
- Magnetic clips
- Pens
- Post-its

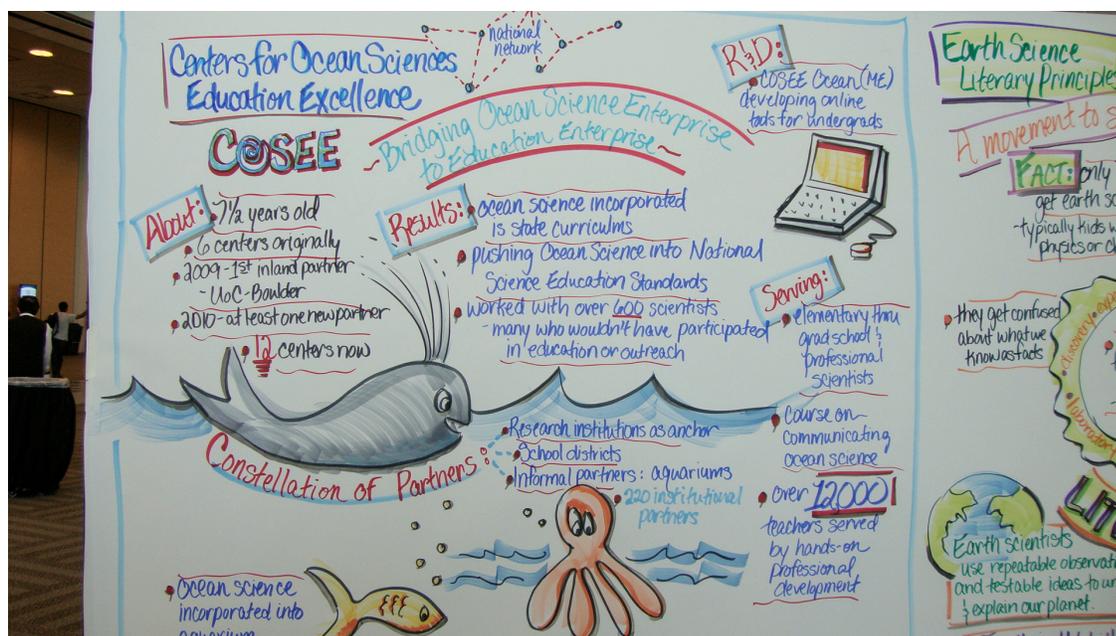


COSEE booth at the Philadelphia 2010 National Science Teachers Association Conference

During the SACNAS conference, the COSEE Network sponsored an ocean science symposium, “*Sustainable Seas: An Interdisciplinary Approach to the Conservation and Management of Ocean Resources*”. The session structure included a presentation from four scientists followed by an opportunity for audience questions. The university and government scientists reported on interdisciplinary research aimed at mediating human impacts and adopting sustainable use practices in marine ecosystems. The scientists included Cory Garza, Assistant Professor, California State University, Monterey Bay, Damien Cie, Graduate Student, Scripps Institution of Oceanography: From the Beach to the Boardroom: Sustainable Management, and Ana Pitchon, Assistant Professor, California State University, Dominguez Hills: The Risks and Realities of Pier Fishing in Los Angeles County.

During the AGU Fall Meeting, the COSEE Network offered a variety of activities for meeting attendees including an oral and poster session entitled Improved Broader Impacts = Enhanced Scientific Impacts and a luncheon to reach young investigators (students finishing their Ph.D.s, post docs, and those in academic positions for less than 5 years) and provide guidance on crafting sound and robust broader impact plans for their federal agency proposals.

An unexpected bonus was the National COSEE Network being featured by Julie Stuart of Making Ideas Visible. M. Stuart was contracted by AGU to create daily murals reflective of the Meeting Highlights. The completed white boards were in the main conference building alongside and visible from the escalators.



For the 2010 Ocean Sciences Meeting, the COSEE Network offered a variety of activities for meeting attendees including a **COSEE/ASLO Multicultural Program Young Investigators Luncheon**. The purpose of the luncheon was to reach young investigators (students finishing their Ph.D.s, post docs, and those in academic positions for less than 5 years) and provide guidance on crafting sound and robust broader impact plans for their federal agency proposals. COSEE collaborated with the ASLO Multicultural Program to offer the workshop. We had 39 Early career/Post-docs/graduate students and 48 undergraduate students attend the luncheon. In addition, members of the COSEE network collectively hosted seven oral session and five poster sessions focused on broader impacts.

## Presentations Organized by the COSEE Centers and the NCO

### COSEE California

#### 2010

**Tsuzuki, T., Y. Fujita, N. Imamiya, K. Hirai, M. Suzuki, C. Strang, March 2010**  
*Development of Programs for Communicating Science by Networking Knowledge Beyond Institutions—The Case of Lawrence Hall of Science.* Oral presentation and paper published into the proceedings at The 16<sup>th</sup> Forum for Studies in Higher Education, Kyoto University, Kyoto Japan.

This paper describes the methods used for developing curriculum materials and programs by Lawrence Hall of Science/COSEE California as a case study. The authors propose that the iterative design process can serve as a model for developing programs in Japan.

**Strang, C. September 2010. U.S. Ocean Literacy Campaign: Leading the way for Pacific nations, Australia, China, Fiji and Japan.** Oral presentation on a panel, "Engaging Scientists and Educators in Ocean Literacy," at the California and the World Ocean Conference 2010, San Francisco, California (see <http://www.cal-span.org/events/CWO/2010/session.php?code=07-d>)

This presentation describes the development of the Ocean Literacy Framework and subsequent grass roots activities carried out as part of the Ocean Literacy Campaign that have had a significant impact on raising the profile of ocean sciences in the mainstream K-12 and informal education systems. The presentation also focused on nascent efforts in Australia, China, Fiji, Japan and Chile to use the US Ocean Literacy Campaign as a model in those countries.

**Duguay, L., Strang, C., Whitley, L., Peach, C., Simms, E., Halversen, C., Tuddenam, P., Parry, C. (2010) Engaging Scientists and Educators in Ocean Literacy. California and the World Ocean 2010, San Francisco, CA.**

This panel investigated a variety of strategies engaging both scientists and educators in promoting ocean literacy broadly.

**Peach, C.L., Gerwick' W., Gerwick' L., Jones' A., Nunnery' J. K., Trentacoste' E., Senise' M., Tayco' D., Mendibles' T., Justice' L., Malloy, K., Sorrels, C., Deutscher, R. (2010) Teaching Ocean Sciences in the 21<sup>st</sup> Century Classroom: Lab to Classroom Videoconferencing. Abstract ED34A-04 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec. Presentation.**

This presentation focused on the evolution of a COSEE facilitated broader impact activity into a mature, self-sustaining outreach activity for a large lab at Scripps Institution of Oceanography.

**Simms, E, Rohrlick, D., Layman, C., Peach, C. L., Orcutt, J. A., Keen, C. S., Matthews, J. (2010) D.E.E.P. Learning: Promoting Informal STEM Learning through Ocean Research Simulation Games. Abstract ED31B-0671 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec. Poster.**

This poster focused on the design and development of prototype ocean science games for informal learning centers built on the XBOX platform.

**Strang, C., D. Payne, L. Whitley, S. Schoedinger, P. Tuddenham. July 2010. *Ocean Literacy Scope & Sequence Update and Next Steps*. Presentation at the National Marine Educators Association Annual Conference, Gatlinburg, Tennessee.**

**Halversen, C. January 2010. *Developing a Scope and Sequence of Learning for Climate Literacy*. Climate Change Education Webinar series, Rutgers University. Webinar**

This webinar presentation was part of the Climate Change Education Webinar series, part of COSEE NOW's New Jersey 4H Climate Change Education project.

<http://coseenow.net/climate/>

**Halversen, C., S. Schoedinger, C. Strang, and L. U. Tran. March 2010. *Practical Applications of the Ocean Literacy Principles Scope and Sequence*. National Science Teachers' Association, Philadelphia. Presentation.**

Presentation focused on classroom applications of The Ocean Literacy Framework which is comprised of Ocean Literacy: The Essential Principles of Ocean Sciences K-12, and The Ocean Literacy Scope and Sequence for Grades K-12. The presentation described the development of a new set of instructional materials (Ocean Sciences Curriculum Sequences) that are based on the Framework.

**Strang, C., L. U. Tran, C. Halversen, L. Whitley, and P. Tuddenham. March 2010. *COSEE: The Ocean Literacy Scope & Sequence*. National Science Teachers' Association, Philadelphia. Presentation.**

This presentation introduced COSEE's Ocean Literacy Scope and Sequence for Grades K-12 to teachers.

**Tran, L. U., and C. Halversen. February 2010. *Teaching Together: Scientists and Educators Creating a New Community of Practice*. Ocean Sciences Meetings, Portland, Oregon. Presentation.**

Presentation focused on the unique, collaborative community that emerged from the development of COSEE's Ocean Literacy Scope and Sequence.

**Peach, CL (*Invited*), the CI Management Team and the OOI Education and Public Engagement Working Group (2010) Ocean Observatory Educational Infrastructure for**

**21<sup>st</sup> Century Learners. AGU Oceans Portland, OR (USA), 22-26 Feb 2010. Invited Presentation.**

This presentation described the Ocean Observatories Initiative education and public engagement effort, with emphasis on the potential for engaging 21<sup>st</sup> century learners in technology mediated activities and included reference to COSEE/OOI CI collaboration.

**Halversen, C., L. Murray, and E. Simms. May 2010. *Scientist Engagement with Educators*. COSEE National Network Meeting, Seattle WA. Presentation.**

Presentation focused on the collaborations that arose through the development of COSEE's Ocean Literacy Scope and Sequence, the Communicating Ocean Sciences college courses and Scripps efforts to support scientists in including high quality broader impact components in their research proposals.

**Halversen, C., and J. Rosenberg. February 2010. *Communicating Ocean Sciences to Informal Audiences and SMILE*. AAAS, Climate Literacy Conference, San Diego, CA. Presentation.**

Presentation focused on the college course Communicating Ocean Sciences to Informal Audiences (COSIA), and SMILE, an online database of science and math activities.

**Randol, S. February 2010. *The Impacts of COS K-12 and COSIA on Future Scientists*. Ocean Sciences Meetings, Portland, OR. Presentation.**

Presentation addressed the effect of two COSEE-developed college courses, Communicating Ocean Sciences K-12 and Communicating Ocean Sciences to Informal Audiences, on undergraduate and graduate students' careers.

**Strang, C. February 2010. *Oral Testimony to the House Appropriations Committee Subcommittee on Commerce, Justice and Science Regarding the Importance of Inquiry-based Science Education and the Role of Science Agencies in the Improvement of Science Education*, delivered and entered into the Congressional Record.**

**Strang, C. January 2010. *Communicating Ocean Sciences: Helping Future Scientists with Education/Outreach*. Alaska Marine Science Symposium, Anchorage, AK. Presentation.**

Presentation focused on the course Communicating Ocean Sciences (COS).

**Weiss, E. March 2010. *¡Youth and the Ocean! (¡YO!): An Academic Achievement and Research Program for Underrepresented Middle School Students*. National Science Education Conference, Philadelphia, PA. Presentation.**

Presentation focused on ¡YO!, a program that works with urban middle school students to build overall academic capacity while providing opportunities for service learning, research experiences, field trips, and family involvement in ocean sciences.

**Tran, L. U. and King, H. March 2010. *Pedagogical content knowledge for science educational professionals working in informal environments*. National Association of Researchers in Science Teaching (NARST), Philadelphia, PA. Poster.**

Poster focused on COSIA's impact on pedagogical content knowledge of educators in informal science institutions.

**Cooper, P., Coopersmith, A., and Barnhardt, R. *Traditional Knowledge and Geoscience Research and Education*. American Geophysical Union. San Francisco, CA. Symposium.**

This symposium explored the strategies used by researchers and educators to meet the challenge of integrating traditional knowledge and science research. Thirteen posters and ten oral presentations were featured.

**Lemus, J. June 2010. *What does inquiry mean to you?* COSEE-Coastal Trends Scientist-Educators Workshop. Video Presentation.**

Presentation focused on the features and use of an inquiry-based approach in science education.

**Lemus, J. and Duncan Seraphin, K. March 2010. *Hawaii-based COSEE Collaborative discusses a new project that integrates traditional knowledge systems with Communicating Ocean Sciences courses in science pedagogy for young science professionals*. National Science Teachers Association (NSTA). Philadelphia, PA. Presentation.**

Presentation provided an overview of the POLYPPS objectives and activities related to teaching Communicating Ocean Sciences using a culturally relevant and place-based approach.

**Duncan Seraphin, K., Heckman, M., and Lemus, J. February 2010. *Beyond The Hype: opportunities & guidelines for effective outreach and education*. International White Shark Symposium. Honolulu, HI. Poster.**

Poster focused on guidelines for effective educational outreach that are grounded in educational research and learning theory.

**Duncan Seraphin, K., Lemus, J., Veary, C. K., Wong, K. Smith, D., and Putnam, H. January 2010. *Communicating Ocean Sciences: Linking Educators and Research Scientists in a Cultural Context*. Hawaii Educational Research Association. Honolulu, HI. Symposium.**

Symposium showcased the POLYPPS collaborative program between the University of Hawaii and COSEE CA. Presentations highlighted (1) ways in which we have adapted the COS and COSIA courses for our island setting, (2) approaches for contextualizing course elements that utilize local and traditional exemplars and knowledge systems, and (3) example outreach projects produced by student pairs in the UH Manoa Communicating Ocean Sciences course.

**2009**

**Tran, L. U. and King, H. April 2009. *Knowledge underlying pedagogy for science museum education*. American Educational Research Association (AERA), San Diego, CA. Presentation.**

This presentation outlined the theoretical underpinnings of the Communicating Ocean Sciences to Informal Audiences course and the Reflecting On Practice professional development program for informal educators.

**Waters, R., T. Clay, and C. Halversen. October 2009. *Development and Implementation of the Communicating Ocean Sciences Program*. North American Association of Environmental Education, Portland, OR. Presentation.**

Presentation on the development and implementation of the Communicating Ocean Sciences program.

**Tran, L. U., and C. Halversen. June 2009. *Sustaining partnerships between scientists and educators*. National Marine Educators Association (NMEA), Monterey, CA. Workshop at meeting.**

This hands-on workshop introduced participants to the COSIA partnership model, showed participants how they can initiate partnerships in their locations, and offered participants a chance to do an activity from the course.

**Tran, L. U., S. Randol, C. Halversen, and C. Strang. April 2009. *College science students are taught to communicate science in informal settings: Implications for practice*. American Educational Research Association, San Diego, CA. Presentation**

Presentation about the COSIA college course.

**Strang, C., L. U. Tran, L. Whitley. June 2009. *Designing Professional Development for Ocean Literacy*. National Marine Educators Association Conference, Monterey, CA. Pre-conference workshop.**

A Day-long pre-conference workshop on principles for the design of effective professional development.

**Strang, C. June 2009. *What's New in COSEE? A panel presentation on New Collaborations with Existing COSEE Centers*. National Marine Educators Association Annual Conference, Monterey, CA. Panel Presentation.**

This panel presentation focused on NSF-funded New Collaborations with Existing Centers in the National COSEE Network. Strang's presentation focused on the collaboration between University of Hawaii and COSEE California.

**Sasaki, T., C. Strang. 2009. *The Spread of the Ocean Literacy Campaign in the U.S.* Japanese Society of Fisheries Science, Spring Meeting, Tokyo, Japan. Presentation.**

This presentation introduced the Ocean Literacy Campaign to a Japanese audience.

**Tran, L. U., C. Halversen, E. Friesen, S. Rowe, D. Bader, and K. Evans. October 2009. *Institution-wide Professional Development; Supporting the Growth of Informal Educators.* Association of Science and Technology Centers (ASTC) Conference, Ft Worth, TX. Presentation.**

Presentation focused on progress to date related to the IMLS-funded professional development program for informal educators called, the Reflecting on Practice program.

**Halversen, C. and K. Beals. October 2009. *Ocean Sciences Curriculum Sequence for Grades 3-5: Overview & Development.* NAAEE Conference, Portland OR. Presentation.**

This presentation focused on the Ocean Sciences Curriculum Sequence.

**Halversen, C. July 2009. *Teaching an Inquiry-based Ocean Sciences Curriculum Sequence for grades 3-5.* National Marine Educators Association (NMEA) Conference, Pacific Grove, CA. Presentation.**

This presentation focused on the Ocean Sciences Curriculum Sequence.

**Halversen, C. July 2009. *Seeds of Science/Roots of Reading: Integrating Science and Literacy at the Elementary Level.* National Marine Educators Association (NMEA) Conference, Pacific Grove, CA.**

This presentation focused on integrating science and literacy.

**Halversen, C. and Curley, J. *Using environmental issues to build students' scientific argumentation skills.* March 2009. National Science Teachers Association (NSTA), New Orleans, LA. Presentation.**

This presentation focused on the Ocean Sciences Curriculum Sequence instructional materials, as a model for incorporating environmental issues and argumentation into science curriculum.

**Weiss, E. July 2009. *¡Youth and the Ocean! (¡YO!): An Academic Achievement and Research Program for Middle School Students.* National Marine Educators Association Conference, Pacific Grove, CA. Presentation.**

Presentation explored successes and challenges of ¡YO!, an NSF-funded program for middle school students and teachers, as a model for building STEM programming for underrepresented students.

**Lemus, J., Duncan Seraphin, K., Cooper, P., Coopersmith, A. July 2009. *Hawaii Collaborative with COSEE-CA: Pacific Ocean Literacy for Youth, Publics, Professionals & Scientists (POLYPPS)*. National Marine Educators Association (NMEA). Monterey, CA. Presentation.**

Presentation provided an overview of the POLYPPS goals, objectives and activities.

## **2008**

**Imamiya, N., C. Strang and K. Hirai. July 2008. *Informal/Formal Education Collaborations Using MARE in the Japan Marine Learning Center, Okinawa, Japan*. National Marine Educators Association Annual Conference, Savannah, GA.**

This presentation focused on lessons learned from the adaptations of the MARE program for use in Japan.

**Strang, C. July 2008. *Ocean Literacy Scope and Sequence: Update on Development and Application to Curriculum Development*, National Marine Educators Association Annual Conference, Savannah, GA.**

This presentation focused on the development of the high school portion of the Ocean Sciences Scope & Sequence for Grades K-12, as well as, the development of curriculum materials based on the elementary portion of the same document.

**Strang, C., S. Schoedinger, L. Whitley, R. Bell, B. Jewell, and M. Lewis. July 2008. *Ocean Literacy Scope and Sequence: Working Session to Review Grades 9-12*. National Marine Educators Association Annual Conference, Savannah, GA. Presentation.**

This session provided an opportunity for NMEA members to make substantive contributions to the development and review of the high school portion of the Ocean Literacy Scope & Sequence for Grades K-12.

**Zimmerman, T.D., C. Halversen, and C. Strang. *Promoting And Researching Sustainable Ocean Scientist-Informal Education Partnerships: The COSEE-CA COSIA Model*. March 2008. Ocean Sciences Meetings, Orlando, FL.**

Presentation focused on COSEE partnership development strategies, mechanisms for promoting future partnerships, our dissemination model, and some preliminary research results.  
<http://www.sgmeet.com/aslo/orlando2008/viewabstract2.asp?AbstractID=2785>

**Halversen, C. and M. Goss. *An Integrated Approach to Science and Literacy with the New Seeds of Science/Roots of Reading Program*. October 2008. NSTA Regional Conferences: National Science Teacher's Assoc., Charlotte, NC. Presentation.**

This presentation focused on the development of Shoreline Science, the first unit in the Seeds of Science, Roots of Reading series.

**Halversen, C. and J. Curley. March 2008. *Using environmental issues to build students' scientific argumentation skills*. National Science Teachers Association (NSTA), Boston, MA. Presentation.**

This presentation focused on the Ocean Sciences Curriculum Sequence as a model for incorporating environmental issues and argumentation into the science curriculum.

**Weiss, E. October 2008. *Using discourse to promote student understanding of investigations*. California Science Education Conference, San Jose, CA. Presentation.**

Presentation focused on the use of discourse to promote student conceptual development during inquiry-based activities and reading science texts.

**Halversen, C., C. Strang, E. Weiss, E., and K. Cuff. March 2008. *Reducing barriers to academic achievement and marine geosciences careers: a model middle school program integrating marine geosciences and literacy to increase diversity in the geosciences*. Ocean Sciences Meeting, Orlando, FL. Presentation.**

Presentation described a model for improving academic achievement and increasing exposure to marine geosciences content and career opportunities for underrepresented middle school students.

**Strang, C. January 2008. *Applying Ocean Literacy Principles to Environmental Education*, workshop at the Bay Area Environmental Education Resources Fair, Marin County, California.**

This presentation mapped the Ocean Literacy Framework to a conceptual framework for environmental education.

**Strang, C. January 2008. *Ocean Literacy: Spanning the Pacific*, Keynote Address at the Japan Ocean Literacy Symposium: New Marine Education to Maintain A Wholesome Global Environment for Eternity, Tokyo University of Marine Science and Technology, Tokyo, Japan.**

This keynote address presented the history of the US Ocean Literacy Campaign and applied it as a model with lessons learned to similar efforts in Japan.

**Collier, RW; Peach, C; Robigou, V; Thorrold, A; Boa, S (2008) *Building Education and Outreach Infrastructure for the NSF-Ocean Observatories Initiative*, AGU Oceans Orlando, FL (USA), 2-7 Mar 2008**

This presentation articulated the plan for the Ocean Observatories Initiative Education and Public Engagement infrastructure. Ocean Literacy Principles served as the education drivers for the plan.

**2007**

**Glenn, S., J. McDonnell, C. Halversen, C. Strang, T. Zimmerman, and L. Ingram. December 2007. *Communicating Ocean Sciences to Informal Audiences (COSIA): Universities, Oceanographic Institutions, Science Centers and Aquariums Working Together to Improve Ocean Education and Public Outreach*. American Geophysical Union (AGU) Meetings, San Francisco, CA. Presentation.**

This presentation described the COSIA partnership model for promoting effective science communication skills and techniques applicable to diverse audiences.

<http://adsabs.harvard.edu/abs/2007AGUFMED24A..06G>

**Peach, C; Yasuda, M; Senise, M; Zimmerman, T (2007) A Strategic Partnership for Teaching Earth and Ocean Sciences in the 21st Century Classroom EOS Transactions, American Geophysical Union. Vol. 88, no. 52, Suppl. Volume 1-2. 25 Dec. 2007. Presentation.**

This presentation described the partnership between COSEE CA and the San Diego Unified School District's Enhancing Science Education Through Technology program.

**Zimmerman, T.D., C. Halversen, and C. Strang. November 2007. *Preparing Future Generations of Scientists for Cross-discipline Communication and Collaboration: The Communicating Ocean Sciences Model*. Estuarine Research Federation Biennial Conference, Providence, RI. Presentation.**

This presentation focused on findings from the first two years of teaching the Communicating Ocean Sciences course at UC Berkeley and three other universities.

**Strang, C. July 2007. *An Ocean Literacy Scope & Sequence for Grades K-5*, presentation at 2007 National Marine Educators Association Annual Conference, Portland Maine.**

This presentation introduced marine educators to an advanced draft of the elementary school portion of the Ocean Literacy Scope & Sequence.

**Halversen, C. and E. Weiss. July 2007. *The Inquiry Connection: Inquiry Science and Literacy*. National Marine Educator's Association (NMEA) Conference, ME. Presentation.**

This presentation addressed strategies for using ocean sciences as a vehicle to promote the integration of science inquiry and literacy.

**Barber, J., G. Cervetti, C. Halversen, and J. Tilson. March 2007. *An Integrated Approach to Science and Literacy with the New Seeds of Science/Roots of Reading Program*. Two presentations at the National Science Teacher's Association, St. Louis, MO. Presentation.**

This presentation introduced a model curriculum unit, Shoreline Science, that uses ocean sciences content as a vehicle for strategic integration of science and literacy.

**Barber, J., L. Barakos, C. Halversen, and J. Tilson. March 2007. *The Connections Between Inquiry Science and Reading*. National Science Teacher's Association, St. Louis, MO. Presentation.**

This presentation focused on a new approach to the use of non-fiction text in a variety of strategic roles within an inquiry-based science unit.

**Weiss, E. October 2007. *Not Your Grandmother's Squid Dissection*. California Science Education Conference, Long Beach, CA. Presentation.**

This presentation provided a model for using traditional hands-on lab-style activities to promote inquiry and investigative thinking by students in the elementary grades.

**Strang, C. February 2007. *Charismatic Content: Integrating Science with Ocean Literacy*, presentation on the Panel entitled, "Interdisciplinary Science Reaches Out: The COSEE Model" with the Communicating Science Track at the 2007 American Association for the Advancement of Science Annual Meeting, San Francisco, CA.**

This presentation introduced the Ocean Literacy Framework as a tool useful to scientists interested in engaging in more effective education and outreach efforts.

**Strang, C. January 2007. *Ocean Literacy*, an interview for radio and web cast conducted by Peter Neill for World Ocean Radio, World Ocean Observatory, Honolulu, see <http://www.thew2o-events.net/radio>.**

This interview served to introduce the Ocean Literacy Campaign and the principles of Ocean Literacy to the public.

**Strang, C. January 2007. *Communicating Ocean Sciences: A Course to Help Future Scientists Address Criterion 2*, Invited seminar at the National Science Foundation for Program Officers and Staff, Washington, DC.**

This invited presentation introduced program officers and staff from across several Directorates to an innovative college course that helps future scientists to become more sophisticated in their approach to addressing Criterion 2: Broader Impact, in their research proposals.

**Strang, C. January 2007. *Ocean Literacy in the United States: Building Consensus, Building Momentum*, Keynote Address at the First International Pacific Marine Educators Conference, Honolulu, HI.**

This keynote address introduced the US Ocean Literacy Campaign for the first time to an international audience as a model for improving public understanding of the ocean.

**2006**

**Strang, C. November 2006. *Comparing Formal and Informal Pedagogy for Science Teaching*, Center for Informal Learning and Schools (CILS) Graduate Seminar, University of California, Santa Cruz.**

This seminar described the differences between formal and informal science education learning theory and pedagogy as related to the two college courses, Communicating Ocean Sciences K-12 and Communicating Ocean Sciences to Informal Audiences.

**Strang, C., S. Schoedinger, L. Whitley, B. Jewell. July 2006. *Ocean Literacy Through Science Standards—A Year Later*, 2006 National Marine Educators Association Annual Conference, Brooklyn, New York.**

This presentation described the early impacts within the ocean sciences and ocean sciences education communities resulting from the 2005 publication of ‘Ocean Literacy: The Essential Principles of Ocean Sciences K-12.

**Strang, C. June 2006. *COSEE: A National Success with a Regional Approach*, invited presentation on the Plenary Session Panel entitled, “Regional Approaches to Ocean Literacy” at the First National Conference on Ocean Literacy (CoOL), Washington, DC.**

This presentation described the establishment and accomplishments of the National COSEE Network in the first three years of its existence as a model improving capacity among scientists and educators to improve public understanding of the ocean.

**Schoedinger, S., C. Strang. April 2006. *Ocean Literacy Through Science Standards*, 2006 NSTA National Conference on Science Education, Anaheim, California.**

This presentation described the rationale for incorporating more ocean sciences concepts into state and national science standards.

**Halversen, C., C. Strang, A. Paytan, L. Ingram. February 2006. *Communicating Ocean Sciences: Scientists and Educators Working Together to Improve Education and Public Outreach*. Ocean Sciences Meetings, Honolulu HI.**

This presentation focused on how COSEE-CA brought together scientists and educators to develop and teach a university course, Communicating Ocean Sciences (COS), which helps undergraduate science majors and science graduate students learn to communicate ocean sciences concepts and acquire teaching skills that can be applied in K-12 and university classes. [http://www.agu.org/meetings/os06/os06-sessions/os06\\_OS23O.html](http://www.agu.org/meetings/os06/os06-sessions/os06_OS23O.html)

**Strang, C. January 2006. *Ocean Literacy Through Science Standards*, Bay Area Environmental Education Resources (BAEER) Fair, Marin County, California.**

This presentation introduced the Ocean Literacy Campaign and the Ocean Literacy Framework to environmental educators in the San Francisco Bay Area.

**Glenn, S., J. McDonnell, C. Halversen, and T. Zimmerman. *Communicating Ocean Sciences to Informal Audiences (COSIA): Universities, Oceanographic Institutions, Science Centers and Aquariums Working Together to Improve Ocean Education and Public Outreach*. December 2006. American Geophysical Union (AGU) Conference, San Francisco, CA. Poster.**

This poster presentation focused on how the COSIA course fosters collaborations between Universities, Oceanographic Institutions, Science Centers and Aquariums.

**Barber, J., L. Barkakos, C. Halversen, and J. Tilson. *Integrating Science and Literacy at the Elementary Level*. October 2006. California Science Teachers' Association, San Francisco, CA. Workshop.**

This short course for teachers at the California Science Teachers' Association meeting focused on integrating science and literacy in elementary school classrooms.

**Helling, H., J. Long, S. Magdziarz, M. Laughlin, J. Kasschau, C.L. Peach, C. Keen, E. Terrill and J. Orcutt, "A New 5<sup>th</sup> Grade Weather and Water Curriculum Emerges: Collaboration Between the Southern California Coastal Ocean Observing System, the Ocean Institute, and the California Center for Ocean Sciences Excellence (abstract)", EOS Transactions, American Geophysical Union. Vol. 87, no. 52, Suppl. 26 Dec. 2006.**

This presentation described the COSEE facilitated partnership between the Southern California Coastal Ocean Observatory and the Ocean Institute, Dana Point in creating portions of a 5<sup>th</sup> grade science curriculum focused on California science content standards for earth science. <http://www.sccoos.org/cc-EspTeachers.html>

**Franks, S.E., C.L. Peach and S. Buhr, "EPO Brokers: Why the good ones are worth their weight in gold (abstract)", EOS Transactions, American Geophysical Union. Vol. 87, no. 52, Suppl. 26 Dec. 2006. Poster**

This poster described COSEE CA efforts to broker education and outreach partnerships between informal science centers and ocean sciences researchers.

**Peach, C; Kilb, D; Kent, G; Fisler, S (2006) *Seismic Sleuths: Using Visualization Technology to Teach Middle School Earth Sciences Content*, EOS Transactions, American Geophysical Union. Vol. 87, no. 52, Suppl. 26 Dec. 2006 Poster.**

This poster illustrated the impact this COSEE facilitated partnership between Scripps scientists and Aquatic Adventures Science Education Foundation to create visualization tools that helped students learn earth sciences concepts.

**2005**

**Strang, C., R. Dorph, R., and C. Halversen. September 2005. *Communicating Ocean Sciences: A Course That Improves Education & Public Outreach*. Oceans Marine Technology Society (MTS) Conference, Washington, DC. Presentation.**

This presentation addressed the Communicating Ocean Sciences course.  
<http://www.cosee.net/resources/index.cfm?ResourceCategoryID=27>

**Halversen, C. October 2005. *The Connections Between Inquiry Science and Reading*. California Science Teacher's Association, Palm Springs, CA. Presentation.**

This presentation focused on integrating scientific inquiry and reading in the classroom.

**Strang, C., C. Halversen. October 2005. *Communicating Ocean Sciences Course: Scientists and College Students Engaged in K-12 Outreach*, short course, 2005 California Science Education Conference, Palm Springs, California.**

This 3-hour short course presentation focused on Communicating Ocean Sciences.

**Strang, C. October 2005. *Ocean Literacy Through Science Standards*, 2005 California Science Education Conference, Palm Springs, California.**

This workshop introduced to California classroom teachers the need to incorporate some essential ideas in ocean sciences into the mainstream science curriculum.

**Strang, C. September 2005. *Communicating Ocean Sciences: A Course That Improves Education & Public Outreach*, Marine Technology Society Oceans 2005 Conference, Washington, DC.**

This presentation described the role of a strategic college course in improving the ability of scientists to conduct education and outreach.

**Strang, C. September 2005. *The Centers for Ocean Sciences Education Excellence (COSEE): A National Success Story*, Marine Technology Society Oceans 2005 Conference, Washington, DC.**

This presentation was part of a panel on ocean sciences education and described the evolution of seven NSF-funded Centers into the National COSEE Network.

**Cava, F., C. Strang, S. Shoedinger, P. Tuddenham. July 2005. *Ocean Literacy Through Science Standards (Results of the On-Line Workshop)*, National Marine Educators Association Annual Conference, Maui, Hawaii.**

This presentation described the results of a two-week online workshop that directly led to the development of the pamphlet, 'Ocean Literacy: The Essential Principles of Ocean Sciences K-12.'

**Strang, C. July 2005. *Communicating Ocean Sciences: A college course that promotes education and outreach*, National Marine Educators Association Annual Conference, Maui, Hawaii.**

This presentation described the development of a new college course at University of California, Berkeley that is now available for national dissemination.

**Halversen, C., D. Penry, C. Strang. February 2005. *Communicating Ocean Sciences: Using Inquiry-based Science and Ocean Science Exemplars in Educational Outreach*. Aquatic Sciences Meeting, American Society for Limnology and Oceanography (ASLO), Salt Lake City, UT. Presentation.**

This presentation focused on how the Communicating Ocean Sciences course uses scientific inquiry in the classroom.

<http://www.aslo.org/slc2005/abstracts/498.htm>

**Halversen, C. July 2005. *Integrating Inquiry-based Science and Literacy Using Ocean Sciences Concepts*. National Marine Educator's Association (NMEA) Conference, Maui, Hawaii.**

This workshop introduced MARE and Seeds of Science, Roots of Reading curriculum materials to marine educators as a model for integrating science and literacy.

**Peach, C.L. & S. R. Franks, and S. Cook. January 2005. The Centers for Ocean Sciences Educational Excellence (COSEE): A growing National Network. 85<sup>th</sup> American Meteorological Association Meeting, 14<sup>th</sup> Symposium on Education & AMS Forum: Living in the Coastal Zone. San Diego, CA. Presentation.**

This presentation focused on the evolution of the COSEE network during its first 4 years.

**Thorrold, A., S. R. Franks, J. McDonnell, and C. L. Peach. June 2005. Ocean Science Education and Outreach: Identifying and Meeting Scientists Needs. International Ocean Research Conference, Paris, France. Poster.**

This presentation focused on scientist surveys conducted by three COSEE centers — COSEE California, Mid-Atlantic, and New England — about their attitudes toward and involvement in education and outreach; these survey results identify additional needs that can be more easily addressed and that can help justify the time and money scientists spend on education and outreach activities.

**Franks, S.E., C. L. Peach, and R. A. Moll, R. A. 2005. *Preemptive Assistance: An Experimental Approach for Engaging Marine Scientists in Education and Outreach*. ASLO Aquatic Sciences Meeting, Salt Lake City. Presentation.**

This presentation focused on the partnership between COSEE CA and CA SeaGrant offering scientists who applied for SeaGrant funding assistance with creating education and outreach components for their proposed projects.

**Franks, S.E.R., C.L. Peach, J. McDonnell and A. Thorrold, "Broader Impact: Guidance for Scientists about Education and Outreach", *Eos Transactions* 86 (12), American Geophysical Union, p. 1, vol. 86 (12), (2005).**

This presentation articulated specific strategies and tactics that researchers can use when engaging in education and outreach activities.

#### **2004**

**Strang, C. December 2004. *The Strategic Plan for the National COSEE Network*, Presentation at American Geophysical Union Fall Meeting, NSF-hosted Session on Centers for Ocean Sciences Education Excellence, San Francisco, California.**

This invited presentation introduced potential COSEE PIs and other scientists interested in education and outreach to the Strategic Plan of the National COSEE Network.

**Halversen, C., C. Strang. December 2004. *Communicating Ocean Sciences*. American Geophysical Union Meetings, San Francisco, CA. Poster.**

Poster focused on the Communicating Ocean Sciences course.

**Halversen, C. October 2004. *The Inquiry Connection: Inquiry Science and Literacy*. California Science Teacher's Association, San Jose, CA. Workshop**

This three-hour short course for teachers focused on integrating science and literacy.

**Cava, F., C. Strang, S. Schoedinger, P. Tuddenham. October 15—31, 2004. *Ocean Literacy Through Science Standards On-Line Workshop*, co-chaired this national workshop for 100 scientists, teachers, informal educators and standards experts.**

This two-week online workshop, sponsored by National Geographic Society, NOAA, COSEE and College of Exploration established consensus among scientists and educators about the few most important ideas that every student should understand by the end of Grade 12. This workshop served as the official, historical launch of the U.S. Ocean Literacy Campaign.

**Strang, C., C. Halversen. July 2004. *Communicating Ocean Sciences*, National Marine Educators Association Annual Conference, St. Petersburg, Florida.**

This presentation described a new course at University of California, Berkeley, designed to develop a generation of ocean scientists more engaged and proficient in education and outreach.

**Lunsford, T. and R. A. Moll. February 2004. *Engaging high school students in an ocean sciences conference*. ASLO/TOS Ocean Research Conference, Honolulu, HI. Presentation.**

In this presentation, representatives of COSEE-CA demonstrated how high school and community college educators can take advantage of the vast amount of information and expertise available at the many scientific conferences held across the country each year.

<http://www.aslo.org/honolulu2004/abstracts/868.html>

**Sullivan, D., B. Ford, and T. Murphree. May 2004. *Ocean Career Website: Preparing Students for the Workforce*. Offshore Technology Conference, Houston, TX.**

This presentation described early efforts by MATE/COSEE California to develop an Ocean Careers Web Site.

**Halversen, C. March 2004. *Communicating Ocean Sciences College Course*. Annual Sanctuary Currents Symposium, "Clean Waters, Healthy Oceans," Monterey, CA.**

This presentation described a new course at University of California, Berkeley, designed to develop a generation of ocean scientists more engaged and proficient in education and outreach.

**Halversen, C. *Development of a Regional MARE Center*. June 2004. Northwest Aquatic and Marine Educators Association (NAME) Conference, Olympia, WA.**

This presentation focused on the establishment of a Regional MARE Centers at Scripps Institution of Oceanography and University of Oregon as a model for similar efforts in the Northwest.

**Halversen, C. July 2004. *Using Ocean Sciences to Integrate Science and Literacy*. National Marine Educators Association (NMEA) Conference, St Petersburg, FL.**

This presentation focused on theoretical approaches and practical tools for promoting literacy development through inquiry-based science instruction.

**Kennel, C. F., J.A. Orcutt, C. L. Peach, and S. E. Franks. December 2004. *The New Oceanographic Research Institution: Scripps in the Broader Impact Era*. American Geophysical Union (AGU) Meeting, San Francisco, CA. Presentation.**

Presentation focused on how Scripps is helping scientists achieve broader impact while maintaining their research excellence. The presentation highlighted four Scripps initiatives aimed at this overarching goal.

**Peach, C. L. and S. E. Franks. December 2004. *High Return on Investments in Scientist-Educator Partnerships: Broader Impact Strategies That Endure and Propagate*. American Geophysical Union (AGU) Meeting, San Francisco, CA. Presentation.**

By investing in partnerships with informal science education (ISE) organizations, researchers can establish a foundation for efficient, high quality, research-based educational outreach (EO) that can help them fulfill their broader impact obligations for years to come.

**Franks, S. E. R. and C. Peach: California COSEE: What's in it for scientists? Ocean Research Conference (ASLO/TOS), Honolulu, 2004. Presentation.**

This presentation introduced COSEE CA support of researchers education and outreach partnerships with formal and informal science educators and educational organizations.

**2003**

**Dean, R. and C. Peach; California COSEE; Engaging Ocean Scientists with the K-12 Classroom, Proceedings, California Science Teachers Association Conference, Long Beach, CA 2003.**

This workshop was designed to introduce teachers to techniques and approaches to engaging researchers in their education activities.

**Sullivan, D., B. Ford, and T. Murphree. September 2003. *Are we adequately preparing students for ocean careers?* MTS Oceans Conference, San Diego, CA.**

Presentation focused on providing accurate information to students about ocean careers and employment opportunities so they can make informed choices concerning their career, education, and future.

**Franks, S.R. & C. L. Peach. December 2003. *Paving the Road to Broader Impact: California Center for Ocean Sciences Education Excellence (CA COSEE).* American Geophysical Union Fall Meeting, San Francisco, CA. Presentation.**

The presentation focused on the value of the services COSEE CA provides in forging partnerships that ultimately make ocean research relevant to non-scientists and change ocean scientists' attitudes toward outreach.

**Strang, C. July 2003. *The California Center for Ocean Science Education Excellence,* National Marine Educators Association Annual Conference, Wilmington, North Carolina.**

This presentation introduced the partners, goals and initiatives of the new California COSEE to marine educators.

**Strang, C. July 2003. *Strategies for Involving Ocean Scientists in K-12 Education,* (Panel Chair) National Marine Educators Association Annual Conference, Wilmington, North Carolina.**

This panel presented a variety of strategies for involving scientists in education and outreach, and in the development of more effective Broader Impact activities.

**Strang, C., C. Halversen. January 2003. *Project Sustainability: Lessons Learned from the MARE Program,* invited presentation at Improving Teacher Quality State Grants Program, Project Director's Meeting, Los Angeles, California.**

This presentation described the history of the MARE program, first funded by Improving Teacher Quality State Grants Program (then called the Eisenhower Program) in 1985, as a successful example of a program that achieved sustainability for 18 years, including the establishment of a Regional Center through the COSEE program.

**Franks, S.R., C. Peach, C. Strang, R. Dean, C. Halversen, and D. Sullivan. September 2003. *California Center for Ocean Sciences Education Excellence. Oceans 2003, San Diego, CA. Presentation.***

Presentation introduced COSEE-CA and explained how it is 1) deepening the involvement of ocean scientists in K-14 education and outreach efforts; 2) providing greater access of underserved students to ocean science and to science and technical careers; and 3) increasing the degree to which ocean science is included in the K-14 science curriculum.

**Peach, C., Franks, S.R., Helling, H., Solomon, E., Driscoll, N. W. & Babcock, J. December 2003. *Bridging the gap between ocean science and education: Creating effective partnerships with informal science education centers. American Geophysical Union Fall Meeting, San Francisco, CA. Presentation.***

This presentation described how COSEE CA catalyzed a scientist/educator partnership by identifying and engaging researchers from disciplines that were consistent with OI exhibit and program goals, serving as a liaison between newly introduced scientists and educators and facilitating the incorporation of E&O components in scientists research proposals, including funding for future exhibits.

## COSEE West

### 2011

**Duguay, Linda and Hotaling, Liesl (co-chairs). February 2011. *Improved Broader Impacts = Enhanced Scientific Impacts (Special Session)*. ASLO Aquatic Science Meeting. San Juan, Puerto Rico.**

Presenters will provide examples of transferable and tractable activities, which broaden the awareness of outreach activities such as work with citizen scientists groups, the media, and formal and informal science education institutions.

**Whitley, Lynn. March 2011. *Ocean Observing Systems: benefits for teachers and their students*. NSTA Conference. San Francisco, California.**

### 2010

**Noda, Gwen; Duguay, Linda; and Whitley, Lynn. February 2010. *COSEE-West: Building Bridges between Ocean Scientists, Educators, and Students (Symposium)*. American Association for the Advancement of Science (AAAS) Meeting. “Bridging Science and Society.” San Diego, California.**

**Hill, Amy. February 2010. *Ecology and Education: Taking scientific research and letting students run with it*. American Association for the Advancement of Science (AAAS) Meeting. “Bridging Science and Society.” San Diego, California.**

**Lee, Jane. February 2010. *COSEE-West: Filling the gap between scientists and educators*. American Association for the Advancement of Science (AAAS) Meeting. “Bridging Science and Society.” San Diego, California.**

**Lowe, Chris. February 2010. *Quantifying movements and habitat use of fishes to design better marine protected areas*. American Association for the Advancement of Science (AAAS) Meeting. “Bridging Science and Society.” San Diego, California.**

**Dorph, Rena; St. John, Mark; Kwon, Patricia; and Parsons, Chris [convenors]. February 2010 *COSEE Evaluations: What We’ve Learned*. Ocean Sciences 2010 Meeting (ASLO/AGU/TOS). Portland, Oregon.**

**Duguay, Linda. February 2010 *COSEE-West’s Ocean Observing System*. Ocean Sciences 2010 Meeting (ASLO/AGU/TOS). Portland, Oregon.**

Presented examples of scientists doing education outreach at COSEE Centers and how evaluation contributed to their education outreach programs.

**Kennison, Rachel and Fong, Peggy. March 2010. *Ontogenetic shifts from benthic to floating macroalgal mats are driven by nutrients and hydrodynamic processes*. California Estuarine Research Society. March 2010. San Diego, CA**

This talk was given as public outreach to the coastal researcher community.

**Whitley, Lynn. March 2010. *COSEE-West workshops: Access to scientists, educators, resources, and classroom activities while enhancing skills in the digital world.* National Science Teachers Association (NSTA) Conference.**

**Whitley, Lynn; Halversen, Catherine; Strang, Craig, and Tuddenham, Peter. March 2010. *The Ocean Literacy Scope and Sequence.* National Science Teachers Association (NSTA) Conference.**

COSEE Strand (nine concurrent session and four short course proposals).

**Bay, Steven. May 2010. *Bringing Environmental Research Into the Classroom.* Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Deck, Dena and Escajeda, Leticia. May 2010. *Teachers Connecting their Students to Science.* Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Noda, Gwen and Chilton, Linda. May 2010. *ABC's of Scientific Conferences* and Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Noda, Gwen and Chilton, Linda. May 2010. *How Attending Scientific Conferences Can Benefit Your Classroom.* Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Noda, Gwen and Chilton, Linda. May 2010. *Bridging science and education: COSEE West partnerships* (session). Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Noda, Gwen and Chilton, Linda. May 2010. *Networking: Talk with COSEE-West Presenters and Staff to Plan Collaborations, Find Solutions, and Explore Opportunities.* Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Noda, Gwen and Chilton, Linda. May 2010. *What are COSEE and COSEE-West? What Can We do? How Can You Be Involved?* Southern California Academy of Sciences (SCAS) Annual Meeting. Los Angeles, California.**

**Ohlsson, Anna; Pham, Sean; and Waters, Torin. June 2010. *Effects of Reef Structural Complexity on Herbivorous Fish Behavior in Moorea.* Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.**

Ciesla, Michelle; Follette, Christelle; and Navarrete, Andy. June 2010. *Promotion of Algal-dominated Communities by Overfishing and Nutrient Addition* Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Chau, Jonathan; Frazier, Nicholas; and Tompkins-Cook, Cameron. June 2010. *Partitioning Herbivory of Different Size Fishes on a Tropical Fringing Reef: Modeling the Effects of Fishing Down the Food Chain*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Lubarsky, Katie; Morris, Trishelle; and Yu, Jeryl. June 2010. *The Effect of Nutrients and Herbivory on Activated Defenses of Galaxaura filamentosa, a Physically Defended Algae*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Fischer, Hayley; Tran, Theodora; and Shimasaki, Lindsay. June 2010. *The Effects of Top-down and Bottom-up Processes on Algal Community Dynamics in Two Bays of Moorea, French Polynesia*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Bucher, Jacqueline; Cheung, Wilson; and White, Timothy. June 2010. *Spatial and Temporal Variation in Nitrogen and Phosphorous Limitation of Macroalgae with Varying Initial Tissue Nutrient Levels*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Clagett, Riley; Ma, Natalie; and Sheridan, Casey. June 2010. *Growth of a Rhizophytic and a Non-rhizophytic Halimeda Species in Response to Water Column and Sediment Enrichment*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Post, Jason; Vu, Priscilla; and Yarid, Alex. June 2010. *Cost and Benefits of the Conditional Association Between Hypnea spinella and Dictyota bartayresiana in Moorea, French Polynesia*. Marine Biology Field Quarter Student Symposium of field research in Moorea, Tahiti. Peggy Fong, David Jacobs (professors for UCLA Marine Biology Quarter Spring 2010). Los Angeles, California.

Screening of COSEE Outreach Projects (for groups with videos)

Whitley, Lynn (virtual participation) and Payne, Diana. July 2010. *The Ocean Literacy Scope and Sequence*. International Pacific Marine Educators Conference (IPMEC).

**Whitley, Lynn. July 2010. *Introducing Ocean Literacy to Teachers New to Marine Science* National Marine Educators Association (NMEA) Annual Conference. Gatlinburg, Tennessee.**

**Noda, Gwen and Friedman, Mark. October 2010. *Teach Marine Biology in Lieu of Biology*. California Science Teachers Association (CSTA) Annual Conference. Sacramento, California.**

**Scowcroft, Gail; Duguay, Linda; and Hotaling, Liesel [co-covenors]. December 2010. *How Do You Measure Broader Impact Success?* AGU Fall Meeting. San Francisco, California.**

Outreach to scientists on how to evaluate their broader impacts.

## **2009**

**Tuddenham, Peter; Bishop, Kristina; Bragg, William; Ryan, Melissa; and Carley, Scott. January 2009. *Adult Free Choice Learning about Ocean science in Online Learning Communities at the College of Exploration*. Aquatic Sciences Meeting (ASLO). Nice, France.**

**Whitley, Lynn. March 2009. *COSEE-West Opportunities for Teachers and Students in the Online World and Beyond*. National Science Teachers Association (NSTA) National Conference. New Orleans, Louisiana..**

**Kwon, Patricia. April 2009. *Developing Online Workshop Models*. National Association for Research in Science Teaching (NARST) Conference. Garden Grove, California.**

Presented on various online workshop models used by COSEE-West and impacts of online workshops in delivering science content to larger audiences.

**Bittick, Sarah; Bryson, Sarah; and Fong, Peggy. May 2009. *Growth of Salicornia virginica into salt pannes through facilitation by *Batis maritima* in southern California salt marsh*. UCLA Biology Research Symposium. Los Angeles, California.**

**Chilton, Linda. June 2009. *What's the Catch? Safe Seafood Consumption Workshop*. National Marine Educators Association (NMEA) Annual Conference. Pacific Grove, California.**

**Day-Miller, E., L. Smith, J. Lubner, A.G. Sprenger, C. Strang and L. Rom. June 2009. *What's new with COSEEs: Recently funded COSEE Collaboration Projects*. National Marine Educators Association (NMEA) Annual Conference. Pacific Grove, California.**

**Noda, Gwen; Friedman, Mark; and Shattuck, Todd. June 2009. *Comprehensive Marine Biology Course -- Teaches all Required California/National Biology Standards!* Pacific Grove, California.**

COSEE West-Colorado Collaborative Presentation

**Whitley, Lynn and Lee, Jane. June 2009. *COSEE-West Online Workshops, Marine Science Resources, Classroom Activities and You!* National Marine Educators Association (NMEA) Annual Conference. Pacific Grove, California.**

**Whitley, Lynn. June 2009. *Ocean Literacy*. National Marine Educators Association (NMEA) Annual Conference. Pacific Grove, California.**

Lynn Whitley and COSEE-California. Ocean Literacy professional development workshop piloting a model Ocean Literacy workshop to be shared with other COSEE centers and NMEA.

**Kennison, Rachel. August 2009. *Have southern California estuaries lost estuarine function and are algae taking over the world? (Invited speaker)*. Smithsonian Tropical Research Institute. Bocas del Toro, Panama.**

This talk was aimed at promoting outreach to a broad international community of graduate students and researchers on current coastal ocean research.

**Green, Lauri and Fong, Peggy. August 2009. *Macroalgal Mats Alter Foraging Behavior of Shorebirds in a Southern California Estuary*. American Ornithological Union Conference. Philadelphia, Pennsylvania.**

**Chilton, Linda. October 2009. *Families Learning Together*. California Science Teachers Association Annual Conference. October 2009. Palm Springs, CA.**

**Noda, Gwen and Friedman, Mark. October 2009. *Comprehensive Marine Biology Course - Teaches all Required California/National Biology Standards!* California Science Teachers Association Annual Conference. October 2009. Palm Springs, CA.**

**Whitley, Lynn. October 2009. *Family Science Equals Science Success and Parent Child Education Program*. California Science Teachers Association Annual Conference. October 2009. Palm Springs, CA.**

Presentations on COSEE-West and SWMEA Ocean Science Strand (one three-hour short course and four one-hour workshops).

**Bryson, Sarah and Fong, Peggy. November 2009. *Facilitation of vegetation into salt marsh salt pannes*. Coastal and Estuarine Research Federation (CERF) Conference. Portland, Oregon.**

**Rachel Clausing and Peggy Fong. November 2009. *Nutrient Limitation in Tropical Macroalgae Depends on Life History Strategies and Watershed Influences*. Coastal and Estuarine Research Federation (CERF) Conference. Portland, Oregon.**

**Tonya Kane and Peggy Fong. November 2009. *Tidally influenced nitrogen fixation and denitrification rates vary widely across eutrophic southern California estuaries.* Coastal and Estuarine Research Federation (CERF) Conference. Portland, Oregon.**

**Rachel Kennison and Peggy Fong. November 2009. Have southern California estuaries lost ecosystem function? Coastal and Estuarine Research Federation (CERF) Conference. Portland, Oregon.**

This talk was given as public outreach to the coastal researcher community.

**Ranjan Muthukrisnan and Peggy Fong. November 2009. *Do coral reefs exist as alternate stable states? Preliminary evidence from two contrasting reef systems.* Coastal and Estuarine Research Federation (CERF) Conference. Portland, Oregon.**

**Kennison, Rachel. December 2009. *Evaluating ecosystem function of nutrient retention and recycling in excessively eutrophic estuaries.* California State University, Fullerton Seminar Series Fullerton, California.**

This talk was aimed at educating graduate and undergraduate students on current coastal research.

## **2008**

**Hamner, William. January 2008. *Evolution in the Deep Sea.* Gifted and Talented Education (GATE) Annual Conference. January 2008.**

**Whitley, Lynn. February 2008. *Ocean Literacy.* Our Places Tell Stories Conference.**

**Whitley, Lynn. March 2008. *QuikScience Challenge. COSEE: Salting Away for our Future—Resources for Understanding the Ocean's Role in Climate Change (short course sponsored by several COSEE Centers). Whale of a Share-A-Thon.* National Science Teachers Association (NSTA) Conference.**

**Hamner, William. March 2008. *Online Workshop Learning Model Based on Undergraduate Science Courses.* Ocean Sciences Meeting (ASLO/AGU/TOS). Orlando, Florida.**

Linda Duguay, Susan Cook, Blanche Meeson. Chaired special session on Collaborative Partnerships in Ocean Education with multiple COSEE Center participation.

**Hamner, William. May 2008. *Inner Space Speciation Project: Mid-water and Epibenthic Sampling in the Celebes Sea, Phillipines, October 2007.* Southern California Academy of Sciences (SCAS) Conference. Los Angeles, California.**

**Lemus, Judy. June 2008. *New Online Workshop Learning Model Incorporating Student Field Research Projects.* 21st Annual Pacific Congress on Marine Science and Technology (PACON). Honolulu, Hawaii.**

**Hamner, Peggy; Whitley, Lynn; and Murray, Laura. July 2008. *Ocean Literacy and an Ocean Science Course*. National Marine Educators Association (NMEA) Annual Conference.**

Peggy Hamner was awarded the National Marine Educators Presidents Award.  
Lynn Whitley, President of NMEA.

**Fong, Peggy. July 2008. 11th International Coral Reef Symposium. Ft. Lauderdale, Florida.**

Coral Reef Ecology Online Workshop (poster session).

**Whitley, Lynn. October 2008. *USC Parent Child Education Program*. International Pacific Marine Educators Conference (PMEC). October 2008. Townsville, Australia.**

**Bryson, Sarah and Lougheed, Vanessa. October 2008. *Snow algae of the western Antarctic Peninsula*. Society for Advancement of Chicanos and Native Americans in Science (SACNAS). Salt Lake City, Utah.**

## **2007**

**Hamner, William and Klein, Renee. January 2007. *Marine Biology Programs, Santa Monica Bay Observatory, real-time data, lessons, curriculum, and experiential programs to incorporate in the classroom*. Gifted and Talented Education Annual Conference. Los Angeles, California.**

Renee Klein (COSEE-West participant) and William Hamner (COSEE-West PI) participated.

**Lemus, Judy and Whitley, Lynn. February 2007. Aquatic Sciences Meeting (ASLO). Santa Fe, New Mexico.**

**Kennison, Rachel; Kamer, Krista; and Fong, Peggy. March 2007. *Low in-flow estuaries: patterns and complexities*. California Estuarine Research Society. March 2007. Bodega Bay, CA.**

This talk was given as public outreach to the coastal researcher community.

**Duguay, Linda and Whitley, Lynn. July 2007. National Marine Educators Association (NMEA) Conference. Portland, Maine.**

Lynn Whitley, President Elect of NMEA. Linda Duguay attended the COSEE-Council meeting held in association with NMEA. Lynn Whitley and Linda Duguay presented a paper on COSEE-West for teachers.

**Klein, Renee. August 2007. *Teachers' Panel on Twenty Years of Teachers Using Satellite Data*. Satellites and Education Conference. Los Angeles, California.**

Renee Klein (COSEE-West participant).

**Hamner, William; Hamner, Peggy; and Noda, Gwen. September-October 2007. *NOAA Ocean Explorers cruise exploring the Celebes Sea, Phillipines*. Los Angeles, California.**

William Hamner, Peggy Hamner, and Gwen Noda. Wrote a blog on their research experiences on NOAA's Ocean Explorers website.

**Noda, Gwen; Lee, Jane; Whitley, Lynn. October 2007. *Ocean Science Strand*. California Science Teachers Association Annual Conference.**

COSEE-West, COSEE California and SWMEA Ocean Science Strand (one all-day shipboard field course, four three-hour short courses, and twenty-two one-hour workshops).

**Kennison, Rachel and Fong, Peggy. November 2007. *Field experiments provide evidence that nutrient supply, scouring, and drag control macroalgal accumulation in estuaries*. Estuarine Research Federation. Providence, Rhode Island.**

This talk was given as public outreach to the coastal researcher community.

## **2006**

**Capone, Douglas. January 2006. *Planet of the Microbes/AKA the Prokaryotes*. Explorers Club Meeting in association with the Ocean Film Festival. San Francisco, California.**

**Michaels, Anthony; Capone, Douglas; Caron, Dave; Berelson, William. February 2006. *Leadership in Marine Science*. Ocean Science Meeting (ASLO/AGU/TOS). Honolulu, Hawaii.**

Training Talk presented as public outreach to Ocean Scientists.

**Kennison, Rachel. February 2006. *Does recruitment of *Enteromorpha intestinalis* reflect adult biomass in Carpinteria Salt Marsh Reserve?* The Mathias Symposium. Bodega Bay, California.**

This talk was given as public outreach to the coastal researcher community.

**Grimm, Jennifer. April 2006. *Lessons Learned from Community-Based Marine Resource Management in the Philippines*. Los Angeles Teachers Union Conference.**

**Ozuna, Ron. April 2006. National Science Teachers Association (NSTA) National Conference. Anaheim, California.**

Ron Ozuna. (COSEE-West teacher) presented a 6<sup>th</sup> Grade Marine Science Curricula he had developed.

**Lemus, Judy and Whitley, Lynn. June 2006. *Education Outreach. Advancing the Science of Limnology and Oceanography (ASLO) Summer Meeting. Victoria, British Columbia.***

**Duguay, Linda. September 2006. *Ocean Education and Outreach Programs for all Californians. California and the World Ocean Conference (CWO)'06. September 2006. Long Beach, CA.***

Chaired session, published abstract and paper presented at the meeting - Duguay, L. E., Franks, S., Hamner, P., Hamner, W., Kwon, P., Lemus, J., Michaels, T., Moll, R., Peach, C., Sullivan, D., Whitley, L. 2006. Centers for Ocean Science Excellence in Education (COSEE) a National and Regional Model for Engaging Ocean Scientists and Educators in Collaborative Activities. , California and the World Ocean (CWO)'06.

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Whitley, Lynn. December 2006. American Geophysical Union (AGU) Fall Meeting. San Francisco, California.**

## **2005**

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. February 2005. Aquatic Sciences Meeting (ASLO). Salt Lake City, Utah.**

Chaired education outreach session.

**Hamner, William and Hamner, Peggy. March 2005. *LAUSD and University Partnerships in SCIENCE Education (panel discussion). Education Partnership Conference (SCALE/QED/ FOCUS). Los Angeles, California.***

**Lemus, Judy. June 2005. *Urban Ocean Science Education at the University of Southern California: Building Community Infrastructure. Advancing the Science of Limnology and Oceanography (ASLO) Summer Meeting. Santiago de Compostela, Spain.***

**Hamner, William. July 2005. Teach the Teachers Collaborative Science Teachers Conference.**

**Lemus, Judy and Whitley, Lynn. July 2005. National Marine Educators Association (NMEA) Annual Conference. Maui, Hawaii.**

**Lemus, Judy and Whitley, Lynn. November 2005. Southwest Marine Educators Association (SWMEA) Conference.**

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. December 2005. American Geophysical Union (AGU) Fall Meeting. San Francisco, California.**

**Hamner, William. December 2005. *Partners in Excellence. Gifted and Talented Education (GATE) Annual Conference. Los Angeles, California.***

**2004**

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. Ocean Research Meeting (ASLO/TOS). February 2004. Honolulu, Hawaii.**

**Kennison, Rachel; Kamer, Krista; and Fong, Peggy. May 2004. *Nutrient dynamics and macroalgal blooms: A comparison of 5 southern California estuaries*. The Center for Environmental Analysis-Centers of Research Excellence in Science and Technology. Pasadena, California.**

This talk was given to promote undergraduate and graduate student research and well as public outreach to managers.

**Kennison, Rachel; Kamer, Krista; and Fong, Peggy. March 2004. *Factors that control macroalgal blooms in a Southern California estuary*. Western Society of Naturalists (WSN). Sonoma, CA.**

This talk was given as public outreach to the coastal researcher community.

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. Aquatic Sciences Meeting (ASLO/AGU). June 2004. Savannah, GA.**

COSEE-West staff participated in several sessions and chaired education outreach session.

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. July 2004. National Marine Educators Association (NMEA) Annual Conference. St. Petersburg, FL.**

**Duguay, Linda. November 2004. *Urban Ocean Issues in Southern California*. National Association of State University Land Grant College (NASULGC) Board on Oceans and Atmospheres (BOA). San Diego, California.**

Presentation promoted outreach to Ocean Managers on significant issues in Southern California waters.

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. November 2004. Southwest Marine Educators Association (SWMEA) Conference.**

**Hamner, William. December 2004. Gifted and Talented Education (GATE) Annual Conference. December 2004.**

Presented information about COSEE-West at LAUSD GATE conference.

**2003**

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. February 2003. Aquatic Sciences Meeting (ASLO/AGU). Salt Lake City, Utah.**

COSEE-West staff participated in several sessions.

**Kennison, Rachel; Kamer, Krista; and Fong, Peggy. April 2003. *Nutrient and Macroalgal Dynamics in Five Southern California Estuaries*. California Estuarine Research Society. San Diego, California.**

This talk was given as public outreach to the coastal researcher community.

**Duguay, Linda; Hamner, Peggy; Hamner, William; Lemus, Judy; Michael, Anthony; and Whitley, Lynn. July 2003. National Marine Educators Association (NMEA) Annual Conference. Wilmington, North Carolina.**

COSEE-West staff participated in several sessions and Co-PI Linda Duguay participated in the COSEE Council Meeting that was held in conjunction with the conference.

**Kennison, Rachel; Kamer, Krista; and Fong, Peggy. October 2003. *Spatial and temporal patterns of water column nutrients, sediment characteristics and macroalgal biomass: A comparison of two southern California estuaries*. Estuarine Research Federation. Seattle, Washington.**

This talk was given as public outreach to the coastal researcher community.

**2002**

**Duguay, Linda. October 2002. *Public Education and Outreach. California and the World Oceans, CWO'02. Symposium: Revisiting and Revising California's Ocean Agenda*. Santa Barbara, California.**

Linda Duguay chaired a special session and Anthony Michaels presented an overview and introduction to the COSEE-West program in this session.

## COSEE Central Gulf of Mexico

**2010**

**Walker, Sharon. 2010. *Institute for Marine Mammal Studies Programmatic Overview—Center for Marine Education and Research*. EPA-Gulf of Mexico Program-Gulf Coast Fund.**

This presentation was made to an Environmental Justice Committee to help form a partnership to recruit underserved and underrepresented children (with scholarships) to attend a Summer Camp Program, focusing on the Gulf of Mexico Alliance (GOMA) Priority Issue Themes; COSEE CGOM was discussed.

**Walker, Sharon. 2010. *Assessing Oil Spill Education Needs*. GCOOS-Board of Directors Meeting. Gulfport, MS. August 14; COSEE CGOM was an integral component of this discussion.**

Based on COSEE Program Managers requesting the COSEE CGOM PI/Co-PIs to redirect their focus on the Deepwater Horizon Oil Spill, Dr. Walker and other Co-PIs became members of a group attempting to determine educational and outreach needs by the public within the Gulf of Mexico.

**Walker, Sharon. 2010. *Gulf of Mexico Alliance Environmental Education: K Through 20 Environmental Literacy*. GOMA-Education and Outreach Committee (EOC) Meeting. Gulfport, MS. August 4.**

This presentation was an overview of Education and Outreach Programming throughout the Gulf of Mexico and COSEE CGOM was included in the discussion.

**Walker, Sharon and Dianne Lindstedt. 2010. *Assessing Oil Spill Education Needs*. GOMA-EOC Meeting. Gulfport, MS. August 3.**

This co-presentation was also based on “oil spill needs” as a result of the distribution of surveys to assess needs by Gulf of Mexico educators; COSEE CGOM was an integral component of this discussion.

**Walker, Sharon, Jessica Kastler, Mike Spranger, Dan Brook, Brian McCann and Tina Miller-Way. 2010. *Climate Change Content and Activities for Formal and Informal Audiences*. National Marine Educators Association Annual Conference. Gatlinburg, TN. July 19-23.**

This group presentation was based on climate change topics presented within COSEE CGOM Summer Institutes or in Two-Day Workshops.

**Estrada, Patricia, Sharon H. Walker, and Margaret Hunter. 2010. *The Development of an Interactive Prototype Gulf of Mexico Alliance Kiosk at the Veracruz Aquarium in Veracruz, Mexico*. Gatlinburg, TN. July 19-23.**

This GOMA PIT kiosk focused on many issues addressed by COSEE CGOM PI/Co-PIs.

**Blyler, Karen. 2010. *The Power of Experiential Education*, National Marine Educators Association Annual Meeting, July 22, Gatlinburg, TN.**

This presentation discussed and provided examples of “Experiential Learning,” by engagement of scientists with formal/informal educators and the public; COSEE CGOM was used as a regional model—documenting the success of experiential learning.

**Spranger, Mike. 2010. *People, Place and Planet: Making a Difference*. National Marine Educators Association Annual Meeting, July 22, Gatlinburg, TN.**

This presentation primarily focused on the need for enhanced stewardship by people and the manner in which COSEE and Sea Grant serve as models for this type learning by K-Gray audiences.

**Kastler, Jessica and Sharon Walker. 2010. *Viewpoints on Education and Outreach: COSEE Scientists Share Their Work*. National Marine Educators Association Annual Conference. Gatlinburg, TN. July 19-23.**

This presentation focused on the results of COSEE CGOM’s ARRA-funded NSF effort, Enhanced Scientists’ Engagement, and effective mechanisms developed and implemented by various Centers for broader societal impacts.

**Jessica K. 2010. Moderator for Oil Spill Discussion. National Marine Educators Association Annual Conference. Gatlinburg, TN. July 19-23.**

Dr. Kastler moderated a session on the Deepwater Horizon Oil Spill primarily attended by Gulf of Mexico educators, NOAA representatives, and others with an interest in the latest happenings as a result of that human-induced catastrophic event.

**Kastler, Jessica. 2010. *Deepwater Horizon Oil Spill: Context for Understanding and Decision-Making*. St. Stanislaus College, School Assembly. Bay St. Louis, MS, May 18.**

This presentation to high school students focused on the Deepwater Horizon Oil Spill and events that had occurred from April 20 to May 18, 2010.

**Kastler, Jessica. 2010. *Understanding the Gulf of Mexico, America’s Sea*. COSEE CGOM Online Presentation Database. <http://cosee-central-gom.org>.**

This COSEE CGOM online presentation focused on the geology of the Gulf of Mexico and represented one of six topics of importance within this critically important body of water.

**Kastler, Jessica. 2010. *Understanding the Gulf of Mexico, America's Sea*. Louisiana Environmental Education Symposium. 1-hour presentation. Baton Rouge, LA, February 26-27.**

This presentation also provided a geologist's overview of the Gulf of Mexico and its importance to American citizens, as well as products exported to other countries.

**Kastler, Jessica, S. H. Walker and S. Ross. 2010. *COSEE:CGOM – Enhanced Scientist Experiences in Summer Institutes*. Ocean Sciences Meeting, Portland, Oregon, February 24.**

This presentation provided examples of mechanisms implemented within COSEE CGOM Workshops and Institutes in which scientists are engaged with educators and the public for broader societal impacts.

**McCann, B.M. and Ross, S.C. 2010. *The Impact COSEE Participation Has On Scientists*. Poster presentation given at the 2010 Ocean Sciences Meeting of the AGU, Portland, OR, February 22-26.**

This presentation reviewed the online and face to face components of the COSEE CGOM Summer Institutes.

**Blyler, Karen. 2010. "COSEE and 4H Youth Education," Youth Development Institute, University of Florida, January 28, Gainesville, FL.**

Ms. Blyler discussed the manner in which COSEE CGOM scientists and formal and informal educators become involved in youth education.

## **2009**

**Spranger, Mike. 2009. *Sea Grant and Ocean Literacy in the USA*, Hei River College Symposium, December 19, Miyako, Japan.**

Dr. Spranger was invited to Hei River College Symposium in Japan to discuss COSEE and the potential of Japan developing a similar, engagement model for its scientists and educators.

**Blyler, Karen. 2009. *COSEE and 4H Youth Education*, Hei River College Symposium, December 19, Miyako, Japan.**

Ms. Blyler was also invited to the Hei River College Symposium in Miyako, Japan to discuss using COSEE and 4-H Youth Education as an educational model.

**Spranger, Mike. 2009. *Sea Grant and Ocean Literacy in the USA*, Tokyo University of Marine Science and Technology Symposium, December 17, Tokyo, Japan.**

Dr. Spranger presented the use of Ocean Literacy with Sea Grant Programs within the U.S. as a potential model for implementation at the Tokyo University of Marine Science and Technology.

**Blyler, Karen. 2009. *COSEE and 4H Youth Education, Tokyo University of Marine Science and Technology Symposium, December 17, Tokyo, Japan.***

This presentation focused on COSEE and 4-H Youth Education in the U.S. and mechanisms for similar program development and implementation at the Tokyo University of Marine Science and Technology.

**Spranger, Mike. 2009. *Sea Grant and Ocean Literacy in the USA, Fukui Prefecture University Seminar, December 15, Fukui, Japan.***

This invited seminar presentation discussed the COSEE CGOM/Sea Grant/Ocean Literacy successful models and partnerships for engagement among scientists and educators.

**Blyler, Karen. 2009. *COSEE and 4-H Youth Education, Fukui Prefecture University Seminar, December 15, Fukui, Japan.***

This invited seminar focused on COSEE CGOM/4-H Youth Education Programmatic partnerships in the U.S.

**Walker, Sharon. 2009. *Ocean Literacy Essential Principles and Fundamental Concepts, Stewardship, and the Gulf of Mexico: An International Treasure, November 13-15, Southern Association Marine Educators Annual Conference, Camp Timpooshee, Niceville, FL.***

This keynote presentation combined the “Ocean Literacy Principles and Fundamental Concepts” and the value of the Gulf of Mexico environmentally, educationally, and economically to this country.

**Walker, Sharon and Jessica Kastler. 2009. *Fish Dissection: Internal and External Anatomy!*, October 26, Oceans 09 e-Mission Student Program, Gulf Coast Coliseum, Biloxi, MS.**

This hands-on presentation was one of six in a “COSEE Strand” at the Marine Technology Society (MTS) Annual Conference; each of the six presentations was presented to six, different high schools from coastal MS and LA.

**Kastler, Jessica. 2009. *The Gulf of Mexico: Understanding America’s Sea, October 24, Marine Technology Society Teacher Workshop, Stennis Space Center, MS.***

This presentation provided a geologic overview of the Gulf of Mexico and represented a “recycled,” multimedia effort previously given to participants enrolled in COSEE CGOM Summer Institute—online component.

**Walker, Sharon and Mike Spranger. 2009. *Stewardship and Marine Education*, October 24, Marine Technology Teacher Workshop, Stennis Space Center, MS.**

This keynote presentation focused on the value of the Gulf of Mexico—as a “National Treasure”—from economic, environmental, and educational perspectives and the manner in which COSEE CGOM is part of this equation.

**Blyler, Karen. 2009. *COSEE, Environmental Education and 4H Marine Education* National Sea Grant Extension Academy, Annual Meeting, October 7, Camp Timpooshee, Niceville, FL.**

This National Sea Grant Academy presentation provided a perspective of the partnerships formed with 4-H, Sea Grant, and COSEE CGOM education.

**Spranger, Mike and Blyler Karen. 2009. *Discussion of COSEE Program*, Florida Sea Grant Extension Annual Meeting, September 22, Gainesville, FL.**

This National Sea Grant Academy presentation informed the attendees of the role COSEE CGOM has served in “bridging the gap” between scientists, educators, and the public within the Gulf of Mexico.

**Blyler, Karen. 2009. *Environmental Education and 4-H Marine Education*, Florida Sea Grant Extension Annual Meeting, September 22, Gainesville, FL.**

This FL Sea Grant Extension presentation depicted the manner in which the COSEE CGOM, 4-H, and the Sea Grant model has been successful in promoting enhanced content knowledge, broader societal impacts, and instructional strategies to various audiences.

**Spranger, Mike. 2009. *Overview of the Central Gulf of Mexico-COSEE Program*, COSEE Informal Educators Workshop, September 10, Ft. Pierce, FL.**

This presentation conveyed to informal educators COSEE CGOM’s importance in the engagement of scientists and educators.

**Blyler, Karen. 2009. *Marine Education and Ocean Literacy*, COSEE Informal Educators Workshop, September 10, Ft. Pierce, FL.**

This presentation provided COSEE CGOM informal educators re-enforcement of ocean literacy and updated ocean sciences content information.

**Spranger, Mike and Blyler Karen. 2009. *Discussion of COSEE Program* Florida Association of Natural Resource Extension Professionals, Annual Meeting of Extension Professional Associations of Florida, August 2, Orlando, FL.**

This dual presentation gave the FL Association of Natural Resource Extension Professionals an overview of the COSEE CGOM successful model between scientists, educators, and the public.

**Kastler, Jessica, Mike Spranger, Dan Brook, Sharon Walker, Brian McCann, and John Dindo. 2009. *Student-Active Stewardship Lessons for the Classroom*. Poster Presentation: National Marine Educators Association Annual Conference. Monterey, CA, June 29-July 3.**

This poster presentation provided NMEA attendees with Stewardship Lesson Plans to use in their classrooms.

**Miller-Way, Tina and Stephanie Wright. 2009. *Applications of GPS and Google Earth in the Classroom*. National Marine Educators Association Annual Conference. Monterey, CA, (COSEE was discussed). June 29-July 3.**

This NMEA presentation provided participants with technology applications to use in their classrooms.

**Wright, Stephanie. 2009. *Sea Turtle C.S.I.* National Marine Educators Association Annual Conference. Monterey, CA, (COSEE was discussed). June 29-July 3.**

This interactive presentation depicted the life cycle of sea turtles in the Gulf of Mexico to NMEA Conference attendees.

**Walker, Sharon H., Tina Miller-Way, Robert Dixon, Debbi Stone, Tricia LeBlanc, Tara Schultz, Ricardo Aguilar, Shelia Brown, and Paty Estrada. 2009. *Developing Six Rotating Exhibits for the Gulf of Mexico-Coastal Eco Learning Centers*. National Marine Educators Association Annual Conference. Monterey, CA, (COSEE was discussed). June 29-July 3.**

This presentation gave NMEA Conference participants an overview of the six, Coastal Ecosystem Learning Centers'-Gulf of Mexico Alliance-Priority Issue Theme Interactive Kiosks being developed for the public in the Gulf of Mexico.

**Spranger, Michael. 2009. *Developing an Ocean and Climate Literate Society in the United States*. World Ocean Conference, Manado, Indonesia (COSEE was discussed). May 14.**

This invited presentation at the World Ocean Conference in Manado, Indonesia gave the international attendees an insight into the success of the COSEE model in promoting an enhanced ocean and climate literate society.

**Sempier, Tracie (2009). *Teacher Perceptions of the Centers for Ocean Sciences and Education Excellence: Central Gulf of Mexico Program*. National COSEE Network Meeting. Hilton Head, SC. May 4-6.**

This invited doctoral research presentation to the COSEE Council conveyed evaluation data on the frequency of use of COSEE CGOM lesson plans among teachers with varying years of experience, to include diverse content backgrounds in education and/or science.

**Miller-Way, Tina, John Dindo, and Mendel Graeber. 2009. *Education and Outreach for NGI at the Dauphin Island Sea Lab*. Northern Gulf Institute Annual Conference (COSEE was discussed). May.**

This NOAA Northern Gulf Institute education and outreach presentation revealed mechanisms for expanded partnerships, to include COSEE CGOM, EPA, NSF, NOAA, and state agencies, as well as business and industry.

**Dindo, John. 2009. *Mobile Bay—It's For the Birds*. Fairhope Public Library, Fairhope, AL (COSEE was discussed). May.**

This presentation focused on Mobile Bay serving as an ideal habitat for coastal and migratory birds; habitats represent one of three foci for COSEE CGOM.

**Dindo, John. 2009. *Coastal Birds of Alabama*. Mary's Place, Coden, AL (COSEE was discussed). April.**

This public forum on coastal birds of AL allowed the incorporation of various topics used within COSEE CGOM to be shared with attendees.

**Dindo, John. 2009. *Living Resources of Mobile Bay*. Fairhope Public Library, Fairhope, AL (COSEE was discussed). May.**

This library presentation allowed Dr. Dindo to share some of the thematic foci of COSEE CGOM and results from other funding agencies concerning the living resources within Mobile Bay.

**Scowcroft, Gail, Sharon Walker, and Paula Keener-Chavis. 2009. *COSEE: Central Gulf of Mexico—One Center Addressing the National COSEE Network Mission*. ORRAP, Washington, D.C., April 7.**

This invited National Oceanographic Partnership Program allowed the co-presenters to provide the history, evolution, partnerships, and an example of one of the 12 COSEE to this coalition of federal agencies with a common ocean sciences and education mission.

**Dixon, Carrie. 2009. *Spreadable, Edible, and Incredible Coral Reefs*. National Science Teachers Association Annual Conference, New Orleans, LA (COSEE was discussed). March.**

This presentation at the NMEA Conference focused on the life history of coral reefs and included COSEE CGOM as a viable vehicle for promoting enhanced content knowledge and instructional strategies.

**Dindo, John. 2009. *Mobile Bay*. Gordon Oaks Retirement Community, Mobile, AL (COSEE was discussed). March.**

This presentation to a group of retirees served as a forum to discuss Mobile Bay in which COSEE CGOM was discussed.

**Kastler, J. A., S. H. Walker, M. Spranger, J. Dindo, and D. Brook. 2009. *Why Research Scientists Should Participate in COSEE: CGOM*. Mississippi Academy of Sciences Annual Conference, Olive Branch, MS, February.**

This presentation at the MS Academy of Sciences focused on broader societal impacts, using COSEE CGOM as a model for scientists/educator engagement.

**Williams, V., J. A. Kastler. 2009. *Revising the Standard Grain Size Analysis Protocol For High School Science Teaching*. Mississippi Academy of Sciences Annual Conference, Olive Branch, MS, (COSEE was discussed). February.**

The co-presenters reviewed a grain-size analysis lesson plan as a complementary COSEE CGOM effort and presented it to session attendees at the MS Academy of Sciences.

**Kastler, J. A. 2009. *Making Effective Scientific Presentations, Oral and Poster Formats*, Mississippi Gulf Coast Community College, Dr. Lena Melton's Honors Biology students, (COSEE was discussed). January.**

This presentation to the Freshmen Honors Biology Class provided students with a professional format for making poster and/or creating platform venues, using COSEE CGOM as a model.

**Dindo, John. 2009. *Fisheries Management and the Role of Apex Predators*, Five Rivers Delta Resource Center, Mobile, AL (COSEE was discussed). January.**

This presentation focused on one of the COSEE CGOM's thematic areas which includes fisheries management and the role of apex predators.

**Walker, Sharon H. 2008. *Partner/Collaborators Panel Funded Center—COSEE:CGOM and Sea Scholars—Funded by the U.S. Navy*, COSEE Council Meeting, Washington, D.C., November.**

This COSEE Council presentation allowed the Centers to better understand the role of the U.S. Navy in providing teachers the opportunity to “go to sea” aboard its oceanographic survey ships, as ship time is available due to defense needs of this country.

## **2008**

**Spranger, Michael. 2008. *The Importance of Youth Involvement in Marine Sciences*. 4H State Marine Ecology Event. Kissimmee, FL. November 15.**

This presentation to the 4-H Coordinators in FL allowed the discussion of why it is important to have youth groups involved in the marine sciences and COSEE CGOM was noted for serving as a catalyst in bringing this involvement to fruition.

**Kastler, J. A., M. Spranger, S. Brown, S. Walker, J. Dindo, and D. Brook, 2008. *Stewardship in the COSEE:CGOM*, Mississippi Alabama Sea Grant Consortium, Bays and Bayous Symposium, Biloxi, MS, October.**

This presentation reviewed mechanisms used by COSEE CGOM personnel in promoting increased environmental stewardship by K-Gray audiences.

**Kastler, J. A. and S. H. Walker. 2008. *Build a Watershed Learning Community in Your School*, B-WET, Mississippi Science Teachers Association, Jackson, MS, (COSEE was discussed). October.**

This MS Academy of Sciences presentation focused on enhanced geological content within the Gulf of Mexico and subsequent, meaningful learning experiences for the teachers' students; COSEE CGOM was discussed.

**Kastler, J. A. and S. H. Walker. 2008. *Size It Up: Measuring Sediment Size to Connect Properties to Processes*, Mississippi Science Teachers Association, Jackson, MS, (COSEE was discussed). October.**

This MS Academy of Sciences presentation allowed sharing with attendees the ecological particle-size lesson plan revisions which are on the COSEE CGOM website.

**Graeber, Mendel. 2008. *Education and Outreach at the Dauphin Island Sea Lab*. 2008 Bays and Bayous Symposium, (COSEE was discussed). October.**

This Bays and Bayous presentation focused on education and outreach programming offered at the Dauphin Island Sea Lab of which COSEE CGOM is a component.

**Walker, Sharon H. 2008. *"Bridging the Gap" Between Scientists and Precollege Teachers, Their Students, and the Public Concerning Coastal Hazard Resiliency*, 2008 Bays and Bayous Symposium, (COSEE was discussed). October.**

This Bays and Bayous presentation also allowed a Coastal Hazards presentation which is a thematic focus on COSEE CGOM, the Gulf of Mexico Alliance, and Sea Grant Programs within the Gulf of Mexico.

**Walker, Sharon H. 2008. *Future Priorities and Actions to Enable the Gulf of Mexico Coastal Ecosystem Learning Centers*, EPA-GOMP Meeting, New Orleans, LA, (COSEE was discussed). October.**

This invited EPA-Gulf of Mexico Program Meeting presentation allowed the development of Coastal Ecosystem Learning Centers' Gulf of Mexico Alliance-Priority Issue Themed Kiosks to be shared with attendees.

**Walker, Sharon. 2008. *Gamming*. NMEA News, National Marine Educators Association Newsletter, Vol. 23, No. 3, (COSEE was discussed). October.**

This NMEA article discussed COSEE CGOM and the COSEE Network both as a regional and national model.

**Spranger, Michael. 2008. *Mechanisms for Educational Opportunities via the U.S. Sea Grant and Indonesia Sea partnership Program*. 4<sup>th</sup> Annual NOAA-DKP Building Capacity Workshop. Jakarta, Indonesia. August 4.**

This invited, international presentation allowed an overview for discussing and using educational opportunities in the U.S. as a model for agencies in other countries; NOAA-Sea Grant and the NSF-COSEE Network were used as models in allowing for their successful implementation.

**Blyler, Karen. 2008. *The Logic Model: A Tool for Evaluating Formal and Informal Educational Programs*. The 4<sup>th</sup> Annual NOAA-DKP Building Capacity Workshop. Jakarta, Indonesia. August 4.**

This invited, international presentation provided attendees with enhanced knowledge on using the Logic Model for evaluation and assessment of educational and outreach programs.

**Kastler, Jessica, Tracie Sempier, Brian McCann, Sharon Walker, Michael Spranger, and John Dindo. 2008. *Ocean Science Lesson Plans: Development and Demonstration of the COSEE:CGOM Website*. National Marine Educators Association Annual Conference. Savannah, GA. July 21-25.**

This presentation focused on use of the COSEE COM website by teachers for downloading lesson plans.

**Ross, Susan, Shelia Brown, Erin Westmoreland, and Tracie Sempier. 2008. *Longitudinal Evaluation of COSEE:CGOM Scientist-Teacher*. National Marine Educators Association Annual Conference. Savannah, GA. July 21-25.**

This presentation allowed COSEE COM internal and external evaluators and graduate students to share longitudinal data and their subsequent interpretations with NMEA Conference attendees.

**Brook, Dan and Brian McCann. 2008. *ATOMS2XP Science Institute for Precollege Teachers* offered at Mississippi State University (COSEE was discussed). Starkville, MS. June 16-20 and July 7-11.**

This presentation focused on select, COSEE CGOM content for precollege teachers attending two, different Summer Institutes at MS State University in Starkville, MS.

**Spranger, Michael. 2008. *Environmental Stewardship in the Gulf of Mexico*. Online Summer Teacher Institute, Central Gulf of Mexico Center for Ocean Science Education Excellence. July 3.**

This online component of the COSEE CGOM Summer Institute provided educators and scientists with an overview of environmental stewardship in the Gulf of Mexico.

**Spranger, Michael. 2008. *Developing a Sense of Place in the Gulf of Mexico*. Bi-annual Summer Teacher Institute, Central Gulf of Mexico Center for Ocean Science Education Excellence, Cedar Key, FL. June 27.**

This presentation focused on stewardship within the face to face component of the COSEE CGOM Summer Institute.

**Spranger, Michael. 2008. *COSEE: Bridging the Gap between Science and Education Communities*. Bi-annual Summer Teacher Institute, Central Gulf of Mexico Center for Ocean Science Education Excellence, Cedar Key, FL. June 23.**

This presentation allowed for the discussion of mechanisms COSEE CGOM uses in “bridging the gap” between scientists’ research and the relevance of those data to teachers and their students.

**Walker, Sharon, Michael Spranger, Jessica Kastler, and Chris Simoniello. 2008. *Leveraging Educational Programs on a Regional and National Basis*. GCOOS Education and Outreach Council Meeting (COSEE was discussed). Pensacola, FL. June 5-6.**

This regional presentation focused on leveraging COSEE CGOM, the Gulf of Mexico Alliance, and the Gulf of Mexico Coastal Ocean Observing System resources for scientists, educators, and the public.

**Walker, Sharon. 2008. *An Overview of the National Sea Grant College Program’s Educational Programs*. National Academy of Sciences—Committee to Review NOAA Education Programs (COSEE was discussed). Washington, DC. May 20.**

This invited, national presentation represented the National Sea Grant Program as one component of the National Academy of Sciences-Committee to Review NOAA Education Programs in which the COSEE Network was discussed.

**Walker, Sharon H., Paula Keener-Chavis, Lundie Spence, Laura Murray, and Sue Cook. 2008. *Messaging/Marketing Presentation to the COSEE Council*. COSEE Network Meeting. Catalina Island, CA. April 29-May 1.**

This presentation focused on the development of a Messaging and Marketing Work Group within the COSEE Council/Network to promote its Centers—both regionally and nationally.

**Spranger, Michael. 2008. *Bridging the Gap Between Science and Education: Opportunities for Scientists and Educators with the Central Gulf of Mexico COSEE*. Florida Marine Science Educator Association, Annual Meeting. Tampa, FL. April 26.**

This presentation to the FL Marine Science Educators Association conveyed methods used by COSEE CGOM personnel in “bridging the gap” between scientists, educators, and the public.

**Sempier, Tracie, Sharon Walker, N. L. Thompson, R.D. Hare. 2008. *Teacher Perceptions of the Center for Ocean Sciences Education Excellence: Central Gulf of Mexico Program*. 2008. Ocean Science Meeting. Orlando, FL. March 2-7.**

This presentation focused on COSEE CGOM doctoral research findings involving evaluation and teacher perceptions of lesson plans and use in their classrooms.

**Kastler, Jessica A., Sharon Walker, Michael Spranger, John Dindo, and R. Dan Brook. 2008. *The Teacher/Scientist Institutes of the COSEE:CGOM – Catalyzing Relationships Among Scientists and Teachers to Enrich Classroom Ocean Sciences Learning*. Ocean Sciences Meeting. Orlando, FL, March 2-7.**

This presentation used the COSEE CGOM as a “catalytic” model for scientists’ and educators’ engagement for classroom enrichment.

**Cook, Jenny. 2008. *Squid Guts*. 2008 National Science Teachers Association Annual Conference. Boston, MA (COSEE was discussed). March 26-30.**

This “hands-on” NSTA presentation on the external/internal anatomy of squids was enviably received by session participants and COSEE CGOM was discussed.

**Dindo, John. 2008. *Coastal Shark Research*. West Mobile Library, Mobile, AL (COSEE was discussed). March.**

This public presentation focused on coastal shark research in which the COSEE CGOM was discussed.

**Walker, Sharon, John Dindo, Michael Spranger, Dan Brook, Jessica Kastler, Susan Ross, and Shelia Brown. 2008. *COSEE: Central Gulf of Mexico (CGOM)-An Effective Collaboration*. Mississippi Academy of Sciences. Olive Branch, MS. February 22.**

This MS Academy of Sciences presentation shared the “ingredients” of a successful, regional model for interactions among scientists, educators, and the public.

**Kastler, Jessica A. 2008. *A Scientist’s Experience in Marine Education – COSEE:CGOM*, Department of Marine Sciences Seminar Series, USM, Stennis Space Center, MS, February.**

This presentation to the Department of Marine Sciences’ faculty conveyed the manner in which a scientist may use his/her research findings and interpretations for broader societal impacts.

**Kastler, Jessica A. 2008. *Using Sediment Analysis to Teach Physical and Environmental Sciences*, Louisiana Environmental Education Symposium (COSEE was discussed). Baton Rouge, LA. February.**

This presentation to the LA Environmental Educator Symposium focused on a COSEE CGOM lesson plan to enhance knowledge concerning sediment analysis as a way to teach physical and environmental sciences.

**May-Brett, Jean and Jessica A. Kastler. 2008. *Oceans and Human Health – Harmful Algal Blooms*, Louisiana Environmental Education Symposium (COSEE was discussed). Baton Rouge, LA. February.**

This presentation allowed for sharing and discussing Harmful Algal Blooms in the ocean and how they may affect human health; this presentation was given at the LA Environmental Educator Symposium and COSEE CGOM was discussed.

**Dindo, John. 2008. *Coastal Shark Research*. Fairhope's K-1 Center, Fairhope, AL (COSEE was discussed). February.**

This coastal shark research presentation was given to lower elementary students—at an appropriate level of understanding—and COSEE CGOM was discussed.

**White, Hazel. 2008. *Marvelous Marine Science*. 2008 Environmental Education Association of Alabama. Blue Lake Camp, Andalusia, AL (COSEE was discussed). January 31-February 2.**

This “hands-on” presentation was provided to attendees at the Environmental Education Association of AL with the intent of augmenting ocean literacy; COSEE CGOM was discussed.

**Dindo, John. 2008. *Mobile Bay United - Natural Resources of Mobile Bay*. Mobile, AL (COSEE was discussed). January.**

This presentation allowed for discussions and sharing of the natural resources of Mobile Bay and COSEE CGOM was a component of this dialogue.

**Exhibits:**

**Spranger, Michael and Karen Blyler. 2008. “COSEE:CGOM Display and Informational Handouts.” Florida Marine Science Educators Association Annual Conference. Naples, FL. April 25-26.**

This FL Marine Science Educators Association exhibit allowed the dissemination of COSEE CGOM information and resources.

**Kastler, Jessica. 2008. “COSEE:CGOM Display and Informational Handouts.” LA Environmental Educational Symposium. Baton Rouge, LA. February 15-16.**

This LA Environmental Education Symposium display provided an opportunity for the dissemination of COSEE CGOM information and resources.

**2007**

**Turner, Joan. 2007. *Fish Make Sense*. 2007. National Science Teachers Association. Alta Vista Conference Center, Birmingham, AL (COSEE was discussed). December 6-8.**

This “hands-on” presentation at the NSTA Regional Conference involved the participants learning “more” about the external and internal anatomy of fish and COSEE CGOM was discussed.

**Cook, Jenny. 2007. *A Shell of a Tale*. 2007. National Science Teachers Association. Alta Vista Conference Center, Birmingham, AL (COSEE was discussed). December 6-8.**

This shell presentation focused primarily on bivalves and gastropods (univalves), their life histories, economic and environmental importance, habitats, and diversity; COSEE CGOM was discussed.

**Spranger, Michael. 2007. *Report on FL COSEE Educational Projects*. Gulf of Mexico COSEE Steering Committee Meeting. Pensacola, FL. November 30.**

This presentation depicted the education endeavors implemented in FL with discussions on engagement among scientists, educators, and the public.

**Graeber, Mendel. 2007. *What's in a Watershed?* 2007 North American Association of Environmental Educators. Norfolk, VA (COSEE was discussed). November 14-17, 2007.**

This North American Association of Environmental Education presentation focused on watersheds, particularly those in the Gulf of Mexico and COSEE CGOM was discussed.

**Spranger, Michael. 2007. *The Importance of Marine Education*. 4H State Marine Ecology Event. Kissimmee, FL. November 3.**

This presentation to the 4-H State Marine Ecology Event depicted the importance of marine education to be shared with attendees and also included aspects of COSEE CGOM programs and resources.

**Kastler, Jessica A. with COSEE Teacher/Scientist Institute Participants (M. Konikoff/scientist, M. Baustian/scientist, A. Wright/teacher, A. Spiers/teacher, T. Savoie/teacher, H. Cregut/teacher). 2007. *Ocean Science Education Excellence...In Your Classroom*. Louisiana Science Teachers Association, Fall Meeting. Lafayette LA. October.**

This presentation to attendees at the LA Science Teachers Association Fall Meeting allowed sharing of the engagement of scientists and educators through COSEE CGOM Summer Institutes.

**Dindo, John. 2007. *Watersheds and their Impacts on Mobile Bay*. West Mobile Library, Mobile, AL (COSEE was discussed). October.**

This public presentation provided participants an increased awareness and understanding of Mobile Bay's watershed and subsequent impacts and the COSEE CGOM was discussed.

**Walker, Sharon, John Dindo, Michael Spranger, Dan Brook, Jessica Kastler, Susan Ross, and Shelia Brown. 2007. *COSEE: Central Gulf of Mexico (CGOM)-An Effective Collaboration*. National Marine Educators Association Annual Conference. Portland, ME. July 24.**

This NMEA Annual Conference presentation provided participants with an overview of the success of COSEE CGOM collaborations.

**Spranger, Michael. 2007. *The FL COSEE Summer Institutes*. National Marine Educator Association, Annual Meeting. Portland, ME. July 24.**

This NMEA presentation revealed to the attendees the events within the face to face and online components of the FL COSEE CGOM Summer Institute.

**Walker, Sharon, Michael S. Spranger, and Jessica A. Kastler. 2007. *Gulf of Mexico Coastal Ocean Observing System Education and Outreach Council Annual Meeting*. (The leveraging of COSEE, Sea Grant, Coastal Ecosystem Learning Centers [CELCs], National Marine Sanctuaries, National Estuarine Research Reserves, and the Smithsonian Institution's Ocean Hall were discussed at this meeting). Spanish Fort, AL. June 18.**

This presentation allowed for leveraging discussions within COSEE CGOM, Sea Grant Programs within the Gulf of Mexico, Coastal Ecosystem Learning Centers within the Gulf of Mexico, National Marine Sanctuaries in the Gulf of Mexico, National Estuarine Research Reserves within the Gulf of Mexico, and the Smithsonian Institution's Sant Ocean Hall.

**Blyler, Karen and Spranger, Michael. 2007 *Central Gulf of Mexico COSEE: Opportunities for Formal and Informal Educators*. Florida Marine Science Educator Association. Annual Meeting. Naples, FL. April 29.**

This presentation at the FL Marine Science Educators Association provided an overview of the opportunities the FL COSEE CGOM offered to scientists and formal and informal educators.

**Spranger, Mike. 2007. *COSEE: Bridging the Gap Between Scientists and Marine Educators*. Naples, FL. April 28.**

This presentation focused on the engagement of scientists and educators within the COSEE CGOM Workshops and Institutes.

**Blyler, Karen. 2007. *State 4-H Marine Ecology Event: Learning Ocean Science Experientially*. Naples, FL. April 28.**

This presentation was comprised of methodologies developed and implemented between COSEE CGOM and FL's State 4-H Coordinators/Instructors.

**Kastler, Jessica A. 2007. *Coastal Restoration Role Play, Gulf Coast Education Initiative Consortium (COSEE was discussed). Biloxi, MS. March.***

This presentation allowed participants to discuss and be involved in coastal restoration scenarios; involvement by the COSEE CGOM PI and Co-PIs was discussed..

**Kastler, Jessica A. 2007. *The Ocean in Our Living Rooms, Hurricanes 2005, & What's Next for Louisiana. Sci-Port Discovery Center, Shreveport, LA (COSEE was discussed). March.***

This presentation provided an overview to session attendees concerning hurricanes and "what" people perceive as being "next" in LA and COSEE CGOM was a component of this discussion.

**Walker, Sharon. 2007. National Sea Grant Review Panel—Sea Grant Education Network (SGEN) [COSEE was discussed]. Washington, D.C. February 21.**

This presentation provided an overview of the Sea Grant Network and the manner in which COSEE CGOM and the COSEE Network, in general, are an asset to NOAA and the Sea Grant.

**Cook, Jenny. 2007. *Fish Make Sense, 2007 Environmental Education Association of Alabama. Cheaha State Park, Talladega, AL. February 1-3.***

This presentation provided a "hands-on" learning situation—focusing on fish biology; organisms are a thematic focus within COSEE CGOM.

**Dindo, John. 2007. *Coastal Shark Research. Fairhope's K-1 Center, Fairhope, AL (COSEE was discussed). February.***

This presentation focused on shark research and Dr. Dindo adapted his activity for a lower elementary audience; COSEE CGOM content was discussed as it related to programmatic needs for scientists, educators, and the public.

**J.A. Kastler. 2007. *The Ocean in Our Living Rooms: A View from Between the Storms, Sci-Port Discovery Center, Shreveport, LA. February.***

This presentation provided audiences with an in-depth "view between storms;" coastal hazards represent a thematic area within COSEE CGOM.

**Kastler, Jessica A. 2007. *A Scientist's Experience in Marine Education—COSEE:CGOM, Department of Coastal Sciences Seminar Series, Gulf Coast Research Laboratory, USM. Ocean Springs, MS. January.***

This COSEE CGOM presentation focused on a scientist's experience and subsequent products/resources developed in working with formal and informal educators.

**Dindo, John. 2007. *Mobile Bay United - Watersheds and their Impacts on Mobile Bay*. Mobile, AL (COSEE was discussed). January.**

This presentation allowed a discussion concerning watersheds and their impacts to Mobile Bay; COSEE CGOM encompasses habitats as a thematic focus.

**Kastler, Jessica A. and M. Vijayaraghavan. 2007. *Learning Science, Stewardship, and Service Through Stream Sampling*, Tulane University General Biology Guest Lecture (COSEE was discussed). New Orleans LA. January.**

This invited presentation at Tulane University focused on stream-sampling as it relates to learning science, environmental stewardship, and community services; water quality/habitats represent a thematic focus of COSEE CGOM.

**Kastler, Jessica A. 2007. *Environmental, Marine and Education Careers in Geology*. Louisiana State University, Geology 1001 Course (COSEE was discussed). Baton Rouge, LA. January.**

This presentation to freshmen geology students provided career information in environmental marine education, to include opportunities offered by COSEE CGOM.

#### **Exhibits**

**Kastler, Jessica. 2007. "COSEE:CGOM Display and Informational Handouts." Louisiana Science Teachers Association Annual Conference. Lafayette, LA. November 1-2.**

A COSEE CGOM display was provided for participants at the LA Science Teachers Association Annual Conference; informational materials were also distributed.

**Wells, Tami. 2007. "COSEE:CGOM Display and Informational Handouts." Mississippi Science Teachers Association Annual Conference. Jackson, MS. October 22-23.**

This exhibit promoted COSEE CGOM and information was given to attendees at the MS Science Teachers Association.

**Wells, Tami. 2007. "COSEE:CGOM Display and Informational Handouts." National Marine Educators Association Annual Conference. Portland, ME. July 23-26.**

This exhibit allowed COSEE CGOM materials to be distributed to attendees at the NMEA Annual Conference.

**Spranger, Michael and Karen Blyler. 2007. "COSEE:CGOM Display and Informational Handouts." Florida Marine Science Educators Association Annual Conference. Naples, FL. April 27-28.**

This display provided an opportunity for attendees at the FL Marine Science Educators Association to receive COSEE CGOM resources.

**2006**

**Spranger, Mike. 2006. *Environmental Stewardship for the Oceans*. Seabring, FL. October 27.**

This presentation focused on environmental stewardship, specifically for the world's ocean and stewardship has always been an essential component of COSEE CGOM instruction among scientists, educators, and the public.

**Walker, Sharon H. and Shelia Brown. 2006. *COSEE:CGOM Summer Institutes for Teachers (Past and Future)*, Mississippi Science Teachers Association. Holiday Inn Crowne Plaza, Jackson, MS. October 23.**

This presentation provided MS Science Teachers Association attendees with recruitment information for COSEE CGOM Summer Institutes.

**Walker, Sharon H. and Shelia Brown. 2006. *Natural Disasters as a Vehicle for Integrated Mathematics and Science Education*. National Marine Educators Association Annual Conference. Long Island, NY. July 18. Published, contributed, national, oral presentation.**

This National Marine Annual Educators Association Annual Conference presentation gave session attendees a successful mechanism for teaching science and mathematics education through the content area of natural disasters.

**Brown, Shelia and Sharon H. Walker. 2006. *Curricular Materials Developed by Teacher/Scientist Teams from the Centers for Ocean Sciences Education Excellence (COSEE): Central Gulf of Mexico (CGOM) Summer Institutes*. National Marine Educators Association Annual Conference. Long Island, NY. July 19.**

This National Marine Educators Association presentation reviewed COSEE CGOM curricular development (lesson plans) by teams of scientists and educators.

**Dindo, John, Hazel Wilson, and Mendel Graeber. 2006. *Coastal Connections*. Dauphin Island, AL (COSEE was discussed). July 16-20.**

This presentation focused on coastal connections and COSEE CGOM was discussed.

**Dindo, John, Joan Turner, and Mendel Graeber. 2006. *Beaches, Birds and Barrier Islands*. Dauphin Island, AL (COSEE was discussed). July 9-29.**

This presentation provided an opportunity to discuss the relationship between beaches, birds, and barrier islands; COSEE CGOM was discussed.

**Dindo, John, Joan Turner, and Greg Graeber. 2006. *Submerged Grassbeds of the Northern Gulf of Mexico*. Dauphin Island, AL (COSEE was discussed). July 23-27.**

This presentation gave attendees an overview of the importance of submerged grassbeds of the northern Gulf of Mexico; COSEE CGOM was also promoted.

**Dindo, John, Jenny Cook, and Greg Graeber. 2006. *Beaches, Birds and Barrier Islands*. Dauphin Island, AL (COSEE was discussed). June 25-29.**

This presentation provided an opportunity to discuss the relationship between beaches, birds, and barrier islands; COSEE CGOM was discussed.

**Dindo, John, Jenny Cook, and Greg Graeber. 2006. *Marine Application of Science and Technology*. Dauphin Island, AL (COSEE was discussed). June 18-22.**

This presentation focused on mechanisms in which technology applications can be used by educators, precollege students, and the public to better understand marine sciences; COSEE CGOM was discussed.

**Spranger, Mike. 2006. *Coastal Ocean Observing Systems*. Cedar Key, FL (COSEE was discussed). June 22.**

This COSEE CGOM presentation in the face to face component of the FL Summer Institute focused on coastal ocean observation data and their use by educators, their students, and the public.

**Spranger, Mike. 2006. *Cedar Key-A Sense of Place*. Cedar Key, FL. June 18.**

This presentation provided a stewardship overview to the educators enrolled in the COSEE CGOM face to face component of the FL Summer Institute.

**Dindo, John, Jenny Cook, and Greg Graeber. 2006. *Submerged Grassbeds of the Northern Gulf of Mexico*. Dauphin Island, AL (COSEE was discussed). June 11-15.**

This presentation gave attendees an overview of the importance of submerged grassbeds of the northern Gulf of Mexico; COSEE CGOM was also promoted.

**Dindo, John, Jenny Cook, and Greg Graeber. 2006. *Marine Application of Science and Technology*. Dauphin Island, AL (COSEE was discussed). June 4-8.**

This presentation focused on mechanisms in which technology applications can be used by educators, precollege students, and the public to better understand marine sciences; COSEE CGOM was discussed.

**Walker, Sharon H. 2006. *J.L. Scott Marine Education Center and Aquarium, Ocean Springs, MS*. Conference on Ocean Literacy Report. June 7-8, pp. 24-25.**

This national presentation focused on the enviable credibility and value the public has on exhibitry and content in informal centers (museums aquariums, and science centers) and all COSEE must “partner” with informal centers.

**Walker, Sharon H. 2006. *Regional Approaches to Ocean Literacy*. Conference on Ocean Literacy Report. June 7-8, pp.15-17.**

This presentation reviewed findings and recommendations in the U.S. Commission on Ocean Policy Report (2004) relative to the success of regional approaches, specifically on ocean literacy and all COSEE promote ocean literacy.

**J. A. Kastler. 2006. *Land Loss in Louisiana: a Post-Hurricane Review of Issues*. Sci-Port Discovery Center, Shreveport (COSEE was discussed). March.**

This presentation provided an update on land loss in LA as a result of Hurricane Katrina and both hurricanes and habitats are thematic foci of COSEE CGOM.

**Spranger, Mike. 2006. *Developing a Work Action Plan*. Gainesville, FL (COSEE was discussed). February 15.**

This presentation focused on the need and components of developing a work plan, to include action items/implementation strategies; COSEE CGOM objectives and regional approaches for implementation were offered as a successful model.

**2005 – Note: Due to Hurricane Katrina, there were limited presentations in 2005.**  
**Walker, Sharon H., and Shelia Brown. 2005. *Mish Mash and More!* National Marine Educators Association Annual Conference, July 16. Maui, HI.**

This presentation focused on biological, geological, and chemical content within a coastal environment from fish, to invertebrates to water quality parameters, to habitats (nearshore and barrier islands); COSEE CGOM opportunities were discussed.

**Dindo, John. 2005. *Coastal Alabama: It's for the Birds*. Faulkner State Community College Centennial Hall, May 9. Fairhope, AL.**

This presentation provided an overview of migratory and shore birds of coastal Alabama; COSEE CGOM opportunities were discussed.

**Brown, Shelia A., Sharon H. Walker, and Susan Culipher-Ross. 2005. *Teachers to Sea Opportunities for U.S. Teachers*, February 18. Oxford, MS.**

This presentation focused on COSEE CGOM's partnership with the U.S. Navy in taking “educators to sea” aboard one of its seven, 329-ft. oceanographic survey ships for a seven to 10-day cruise wherein teachers work “side by side” with Navy and civilian personnel taking

geological, chemical, physical, and biological survey data—to include bathymetry, acoustics, meteorology, and Naval applications.

**Walker, Sharon H., Shelia A. Brown, and Susan Culipher-Ross. 2005. *Professional Development Opportunities for Gulf of Mexico Scientists and Middle School Teachers-Centers for Ocean Sciences Education Excellence (COSEE)*. Mississippi Academy of Sciences, February 18. Oxford, MS.**

This MS Academy of Sciences presentation provided session attendees with Professional Development opportunities through promoting COSEE CGOM Workshops, Institutes, and Informal Center exhibitry.

**Kastler, Jessica, Sharon Walker, John Dindo, Mike Spranger, and Rick Tinnin. 2005. *Central Gulf of Mexico Center for Ocean Sciences Education Excellence: Scientists Working with Educators – and Satisfying NSF Criterion 2*. February 3. American Fisheries Society Annual Meeting, Baton Rouge, LA.**

This COSEE CGOM presentation gave an overview of mechanisms scientists could use for broader societal impacts concerning the relevance of their research findings to an average citizen's everyday life.

**Walker, Sharon H., Mike Spranger, John Dindo, Rick Tinnin, Jessica Kastler, Shelia Brown, Susan Ross, Dan Brook, Tina Bishop, and Peter Tuddenham. 2005. *Lessons Learned . . . COSEE: Central Gulf of Mexico Informal and Formal Education*, January 10. American Meteorology Society Annual Conference – 14th Symposium on Education. San Diego, CA.**

This American Meteorological Society Symposium on Education presentation allowed the COSEE CGOM PI/Co-PIs to share and discuss “lessons learned” in this three-year effort.

## 2004

**Walker, Sharon H., Shelia Brown, Susan Culipher Ross, Michael Spranger, John Dindo, Rick Tinnin, Jessica Kastler, Dan Brook, Tina Bishop, and Peter Tuddenham. 2004. *A Successful Collaborative: Scientists and Middle School Teachers!* American Geophysical Union Annual Fall Meeting. December 14. San Francisco, CA.**

This American Geophysical Union presentation allowed the PI, Co-PIs, and Evaluators an opportunity to discuss the success of COSEE CGOM—focusing on scientists', educators', and the public's enhanced understanding of the world's ocean and the perception of a “sense of place” shared by humans.

**Dindo, John. 2004. *Invasive Species, COSEE and Biotechnology*. Eleuthera Island School, Bahamas, December 1.**

This presentation to schools on the Eleuthera, Bahamaian Island allowed students and teachers to be more aware and to better understand “how” invasive species, biotechnology, and COSEE CGOM objectives are all interconnected.

**Tinnin, Rick. 2004. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico. Science Teachers Association of Corpus Christi, November 4-6. Corpus Christi, TX.***

This presentation allowed the TX Co-PI to promote PD opportunities and share 2003-2004 COSEE CGOM successes to educators attending the Science Teachers of Corpus Christi Meeting.

**Walker, Sharon H. and Shelia A. Brown. 2004. *Mississippi’s Centers for Ocean Sciences Education Excellence (COSEE:CGOM), Sea Scholars, and Oceans Alive! 2004. Mississippi Science Teachers Association Annual Conference. October 25-26. Jackson, MS.***

This co-presentation to the attendees of the MS Science Teachers Association session promoted Sea Scholars (14 teachers) and Oceans Alive! (three teachers and four high school students) by reviewing and discussing the activities in which participants were involved while “at sea;” these programs (COSEE CGOM and the U.S. Navy) formed a very successful partnership in 1997 which still continues today (as ship’s are available).

**Dindo, John. 2004. *Invasive Species, COSEE and Biotechnology. DIALOG, October 30.***

This presentation allowed attendees to be more aware and better understand “how” invasive species, biotechnology, and COSEE CGOM objectives are all interconnected.

**Walker, Sharon H. 2004. *The COSEE Network’s Involvement in Aquariums and Public Outreach Panel Discussion... Aquarium Exhibitory and COSEE:CGOM Public Awareness of Ocean Sciences, American Zoo and Aquarium (AZA) Association Annual Conference, September 20. New Orleans, LA.***

This invited, national, Association of Zoos and Aquariums (AZA) presentation conveyed to session attendees the COSEE Network’s involvement in partnering with informal centers to enhance ocean literacy by the public.

**Brown, Shelia A. and Sharon H. Walker. 2004. *Sea Scholars and Mississippi’s COSEE:CGOM, National Marine Educators Association Annual Conference, July 19. St. Petersburg, FL.***

This NMEA presentation provided an overview of COSEE CGOM’s partnership with the U.S. Navy in taking 14 educators to sea to increase their understanding of oceanography and its applications.

**Walker, Sharon H., Michael Spranger, John Dindo, Richard Tinnin, Jessica Kastler, Shelia Brown, R. Dan Brook, Susan Culipher-Ross, Tina Bishop, and Peter Tuddenham. 2004. *The First Year, Lessons Learned—Comparison of Years 1 and 2: COSEE:CGOM Formal and***

***Informal Education, National Marine Educators Association Annual Conference, July 19. St. Petersburg, FL.***

This shared COSEE CGOM presentation by the PI, Co-PIs, and evaluators compared 2004 and 2003 in the lessons learned concerning involvement of scientists and formal and informal educators.

**Tinnin, Rick. 2004. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico*. NSF-GK-12 Symposium, June 7. University of Texas Marine Science Institute, Port Aransas, TX.**

This NSF-GK-12 Symposium presentation provided an overview of similarities, differences, and mechanisms for collaboration between two, NSF-funded programs, i.e., COSEE and GK-12.

**Tinnin, Rick. 2004. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico*. Texas Marine Educators Association Workshop, April 16-18. University of Texas Marine Science Institute, Port Aransas, TX.**

This presentation focused on COSEE CGOM Workshop and Institute opportunities for TX educators.

**Walker, Sharon H. 2004. COSEE:CGOM Poster Presentation. *COSEE Strategic Planning Workshop*. Consortium for Oceanographic Research and Education (CORE). April 13-15. Washington, DC.**

This poster presentation provided each COSEE in attendance with an overview of respective foci of individual Centers, thereby allowing this NSF program to begin its evolution as a Network rather than seven, individual, disparate Centers.

**Walker, Sharon H., Shelia Brown, John Dindo, Mike Spranger, Jessica Kastler, Rick Tinnin – *COSEE: Central Gulf of Mexico*. 2004. *Chitin/Chitosan: Refuse Revisited or One Person's Trash is Another's Treasure*. National Science Teachers' Association Annual Conference. April 1. Atlanta, GA.**

This National Science Teachers Association (NSTA) presentation allowed attendees an augmented awareness and understanding of some crustaceans' exoskeleton, chitin, and manner in which it can be used as life-saving products for humans; this presentation represented one of the COSEE CGOM lesson plans.

**Dindo, John. 2004. *Invasive Species, COSEE and Biotechnology*. Nature Conservancy Workshop, March 16.**

This Nature Conservancy Workshop presentation provided participants an increased awareness and understanding of "how" invasive species, biotechnology, and COSEE CGOM are all interconnected.

**Walker, Sharon H., Shelia A. Brown, and Kay Baggett. 2004. *Center for Ocean Science Education Excellence: Central Gulf of Mexico Presents Its Spring 2004 Informal Educators' Workshop*. Mississippi's COSEE:CGOM Nonformal Workshop. March 4-5. Biloxi, MS.**

This Informal COSEE CGOM Workshop presentation provided enhanced content and increased instructional strategies to educators relative to organisms/habitats, physical parameters, and marine technology through scientists' engagement.

**Tinnin, Rick 2004. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico. Informal Science Educators Association of Texas Conference, March 3-6. University of Texas Marine Science Institute, Port Aransas, TX.***

This presentation provided COSEE CGOM Informal Workshop participants with increased content knowledge and augmented instructional strategies concerning organisms/habitats, physical parameters, and marine technology through scientists' engagement.

**Kastler, Jessica A., Sharon Walker, John Dindo, Mike Spranger, Rick Tinnin. 2004. *Summer Opportunity for Scientists with the Central Gulf of Mexico Center for Ocean Science Education Excellence (COSEE)*. Louisiana Academy of Sciences, McNeese State University, March, Lake Charles, LA.**

This COSEE CGOM presentation focused on objectives, methodologies, and outcome for the implementation of Workshops and Institutes (face to face and online) to be conducted in 2004 and 2005.

**Dindo, John. 2004. *Invasive Species, COSEE and Biotechnology*. Illinois Snowbird, Zeke's Down Under, February 27.**

This presentation to elderhostels visiting the Dauphin Island Sea Lab were provided an increased awareness and understanding of "how" invasive species, COSEE CGOM, and biotechnology are interconnected.

**Kastler, Jessica A., Sharon Walker, John Dindo, Mike Spranger, Rick Tinnin. 2004. *Summer Opportunity for Teachers at LUMCON: Center for Ocean Sciences Education Excellence – COSEE:CGOM*. Environmental Education Symposium, February. Baton Rouge, LA.**

This presentation focused on the engagement of educators and scientists through future COSEE CGOM Workshops and Summer Institutes (face to face and online) to be implemented at the LA Universities Consortium.

**Tinnin, Rick 2004. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico. Texas Council for Elementary Science Conference. University of Texas Marine Science Institute. January 16-18. Port Aransas, TX.***

This presentation provided an overview to the attendees of the TX Council for Elementary Science Conference on Professional Development opportunities through COSEE CGOM Workshops and Summer Institutes (face to face and online).

**2003**

**Spranger, Mike. 2003. *Bridging the Gap: Changing the Science/Education Paradigm*, NonFormal COSEE Education Workshop, December 10, Gainesville, FL.**

This COSEE CGOM presentation provided attendees of the FL Nonformal Workshop with enhanced content knowledge and increased instructional strategies through engagement and interaction with scientists focusing on organisms/habitats, physical parameters, and marine technology.

**Kastler, Jessica, C. Chavin, J. Cain, L. Pulling, J. Simpson, V. Stewart, C. Banks-Jones, K. Barbay, T. Miguez, C. Bihm, and S. Bordelon. *Center for Ocean Science Education Excellence (COSEE) at LUMCON (I)*, Louisiana Science Teachers Association Annual Conference, December 5, Chauvin, LA.**

This presentation focused on COSEE CGOM opportunities for enhanced content knowledge and increased instructional strategies through engagement and interaction with scientists focusing on organisms/habitats, physical parameters, and marine technology.

**Brown, Shelia, Cindy Moon, and Christine Wilson. 2003. *Plankton and Other COSEE Staff Development Activities*, Mississippi Science Teachers Association Annual Conference, October 27, Jackson, MS.**

This Mississippi Science Teachers Association (MSTA) presentation allowed for the discussion and overview of a plankton activity developed by middle school teachers for other middle school teachers' use in the classroom; these teachers (Moon and Wilson) were participants in the Summer Institute.

**Baggett, Kay. 2003. *What's New at Scott Aquarium*, Mississippi Science Teachers Association Annual Conference, October 27, Jackson, MS.**

This COSEE CGOM presentation provided an overview of 2004 and 2005 Nonformal Education Workshops and the Summer Institutes (face to face and online).

**Spranger, Mike. 2003. *COSEE*, Annual Florida Sea Grant Faculty Meeting, October 7, Gainesville, FL.**

This presentation to the Sea Grant Faculty within the University of FL allowed a time of sharing COSEE CGOM and future opportunities for scientists' and educators' engagement in 2004 and 2005.

**Walker, Sharon H., John Dindo, Jessica Kastler, Michael Spranger, Richard Tinnin, Shelia Brown, and Dan Brook. 2003. *Center for Ocean Sciences Education Excellence: Central Gulf of Mexico (COSEE:CGOM)—The First Year*, Marine Technology Society, September 22-26, San Diego, CA. Oral presentation, international conference, published paper (proceedings).**

This Marine Technology Society (MTS) presentation allowed for sharing and discussing the COSEE concept of engagement between scientists and educators and broader societal impacts to members of a professional society with similar missions and goals to NSF, NOAA, and other National Oceanographic Partnership Program (NOPP) agencies.

**Walker, Sharon H., John Dindo, Jessica Kastler, Michael Spranger, Richard Tinnin, Shelia Brown, and Dan Brook. 2003. *Central Gulf of Mexico (CGOM): Center for Ocean Sciences Education Excellence (COSEE)*, July, Wilmington, NC. Oral presentation, national meeting (with international attendance), published abstract.**

This presentation focused on the COSEE concept, the recently-funded, seven Centers, and an overview of COSEE CGOM to session attendees at the National Marine Educators Association Annual Conference.

**Brown, Shelia. 2003. *Sea Scholars*, National Marine Educators Association, July 21, Wilmington, NC.**

This presentation provided an overview of the NSF/COSEE CGOM and the U.S. Navy partnership in placing 14 educators for seven to 10 days aboard one of seven oceanographic survey ships to work “side by side” with Navy and civilian surveyors.

**Baggett, Kay. 2003. *Storming Into Mississippi Classrooms*, National Marine Educators Association, July 21, Wilmington, NC.**

The primary objective of this presentation centered on hurricanes in helping teachers and their students be more prepared for these catastrophic events; Ms. Baggett was the COSEE CGOM Educator in MS.

**Spranger, Mike. 2003. *COSEE: Goals, Objectives, Expectations*, Formal Educator’s COSEE Institute, June 23, Cedar Key, FL.**

This presentation provided an overview to the FL Summer Institute participants concerning COSEE CGOM’s goals, objectives, and expectations.

**Walker, Sharon H., John Dindo, Jessica Kastler, Michael Spranger, Richard Tinnin, Shelia Brown, and Dan Brook. 2003. *COSEE:CGOM*, The Oceanography Society-Oceanology International Americas Ocean Conference, June, New Orleans, LA. Poster presentation, international meeting, published abstract.**

This poster presentation focused on the COSEE concept, its objectives, goals, the identification and location of its seven Centers, and the complementary mechanism being implemented by COSEE CGOM.

**Spranger, Mike. 2003. *COSEE: Partnerships at Work, Southeast Atlantic Ocean Observation System Project Biannual Meeting, May 28, Jacksonville, FL.***

This presentation provided an overview of the initiation of a partnership between COSEE CGOM-FL and the Southeast Atlantic Coastal Ocean Observing System (SEACOOS) to strengthen scientists' and educators' professional engagement within each group.

**Spranger, Mike. 2003. *COSEE, Florida Marine Science Educator Association Annual Meeting, May 2, Marathon, FL.***

This presentation to the FL Marine Science Educators Association allowed the opportunity to discuss COSEE CGOM and its Workshops and Summer Institutes (online and face to face).

**Walker, Sharon H. and Michael Spranger. 2003. *COSEE:CGOM Update, Sea Grant Week, April 24-28, Galveston, TX.***

This presentation provided an overview of COSEE CGOM as one of seven Centers funded by NSF, NOAA (Sea Grant), and the U.S. Navy, to include goals, objectives, and anticipated outcomes.

**Walker, Sharon H., John Dindo, Jessica Kastler, Michael Spranger, Richard Tinnin, Shelia Brown, and Dan Brook. 2003. *COSEE:CGOM, National Marine Educators Association Share-A-Thon at the National Science Teachers Association National Conference, March 27, Philadelphia, PA.***

This presentation during the National Marine Educators Association's Share-A-Thon at the National Science Teachers Association Annual Conference allowed the opportunity to "promote and market" COSEE CGOM.

**Walker, Sharon H. 2003. *Why Are the Oceans Important to You and Me? And How Wet is Our Planet?*, National Marine Educators Track at the National Science Teachers Association National Conference, March 27, Philadelphia, PA.**

This hands-on presentation at the National Science Teachers Association Annual Conference provided the opportunity to enhance the attendees' content knowledge relative to the importance of the world's ocean and the distribution and abundance of water on this planet; this activity is a **MUST** for COSEE CGOM Institute participants.

**Walker, Sharon H., John Dindo, Jessica Kastler, Michael Spranger, Richard Tinnin, Shelia Brown, and Dan Brook. 2003. *COSEE:CGOM, COSEE PI Meeting, March 3-4, Washington DC. Invited special presentation (oral), national meeting, published abstract.***

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This invited presentation allowed the PI and select Co-PIs to discuss COSEE CGOM and gain a more indepth understanding of the other six COSEE in this country.

**Walker, Sharon H. 2003. *Central Gulf of Mexico Center for Ocean Sciences Education Excellence*, Mississippi Academy of Sciences, February 14, Hattiesburg, MS.**

This Mississippi Academy of Sciences presentation focused on COSEE CGOM scientists' and educators' professional engagement which allows educators to enhance their content knowledge and the scientists to better understand pedagogy, how children learn, and state and national standards.

## COSEE Florida (2002)

### 2008

Lambert, J., Wolfe, G, & Hargis, J. (2008, March). *Using online ocean studies to chart a new course in science teacher education*. Poster presented the American Geophysical Union Ocean Sciences Meeting Orlando, FL. Refereed based on abstract.

Lambert, J. & Hargis, J. (2008, January). *Using an innovative ocean science approach to chart a new course in science teacher education*. Poster presented at the American Meteorological Society Annual Meeting. New Orleans, LA. Refereed based on abstract.

### 2007

Lambert, J., Servos, S., Wolfe, G. & Hargis, J. (2007, January). *Using an innovative ocean science approach to chart a new course in science teacher education*. Paper presented at the Association for Science Teacher Education, Clearwater, FL. Refereed based on abstract.

Spector, B., & Leard, C. (2007). Association for Science Teacher Education Annual Conference (January) Clearwater, FL, *Scientists and science teacher educators: Learning to communicate* .

Spector, B., Lambert, J., Wolfe, G., Hargis, J. (2007). Association for Science Teacher Education Annual Conference( January) Clearwater, FL, *Using an innovative ocean science approach to chart a new course in science teacher education*

Spector, B., Rutherford, H., Berger, D., & Lake, J. (2007). National Marine Education Association July 23-27, Portland Maine, *Bridging the gap: Formal and informal educators*

Spector, B., Fortner, R, Spence, L., Strang, C., Mc Donnell, J, & Spitzer, W. (2007) American Association for the Advancement of Science Annual Conference. *Interdisciplinary Science Reaches Out: The COSEE Model.*, San Francisco, Feb 14-19 (90 minute symposium)

### 2006

Spector, B. (2006) Presentation on COSEE at Florida's Building A Presence partnership and Florida Association of Science Teachers Board meeting June 15 (1/2 day) 16 & 17 (1/2 day) Gainesville FL

### 2005

Spector, B., Spence, L. (2005) Association for the Education of Teachers in Science. *Centers for Ocean Sciences Education Excellence (COSEE): Providing Ocean Science and Technology Relevant to All Teacher Educators*. Colorado Springs, CO. January 19-23,

Spector, B., & Leard, C. (2005) Association for the Education of Teachers in Science. *Real Science in Real-Time with Real Results*. Colorado Springs, CO. January 19-23.

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Spector, B., Leard, C., & Luther, P. (2005). International Association for Science, Technology, Society. *Ocean Policy Panel II Coastal Ocean Observing System: Real world STS for Educational Enterprises*. Baltimore, MD. February 10-12.

Spector, B. (2005). Florida Marine Science Educators Association. *Update on Center for Ocean Science Education Excellence-Florida*. St. Augustine, FL April 14-18, 2005

Spector, B., & Bethany, D. (2005). Florida Department of Environmental Protection. COSEE-FL's Web Portal Capacities to Assist in Meeting Goals of CAMA Leaders Tallahassee, FL Sept 28-29.

Spector, B. (2005). Florida's Oceans and Coastal Resources Council Meeting: *COSEE-FL's Web Portal As a Tool for Virtual Meetings*. Tallahassee.

### 2004

Lambert, J. (2004) "Unsolved Mysteries Beneath the Sea." Explorer of the Seas Cruise, Royal Caribbean. Conducted tours of oceanography laboratory, collected Gulf Stream data, and made several presentations (June 28- July 4, 2004).

Lambert, J. (2004, July). *Marine science and scientific literacy: The promise of an integrated science curriculum*. Presented at the National Marine Science Education Association conference. Refereed based on abstract.

Spector, B., Leard, C., Coble, P., & Greely, T. (2004). Association for the Education of Teachers in Science. Jan 8-11, Nashville, TN *Bringing marine scientists into science education*. (Co-authors Spector, B. (2004).

Spector, B., Coble, P. & Greely, T. (2004) National Association of Science Teachers. *Getting Hooked on the Oceans*. April 3, Atlanta GA

Spector, B. (2004) National Association for Science Technology Society. Feb 19-22, Baltimore, MD- *Mystique of the Sea, Alluring, Exciting, and Transdisciplinary: STS at Its Best*.

Spector, B., Greely, T., & Coble, P. (2004). American Society of Limnology & Oceanography. *Scientists and Educators*. Honolulu, HI Feb 15-20

Spector, B. & Leard, C. (2004). National Marine Science Educators Association. Can Ocean Scientists and Educators REALLY Understand Each Other. July 18-22, St. Petersburg, FL  
Spector, B. & Leard, C. (2004). Florida Marine Science Educators Association. Can Ocean Scientists and Educators REALLY Understand Each Other. July 18-22, St. Petersburg, FL

Spector, B. & Wilson, W. (2004). Florida Association of Science Teachers. *Teachers & Scientists Collaborating -What a Concept! Check Out FL COSEE*. Orlando Oct. 15-16.

Spector, B. (2004). Florida Coastal School of Law Center for Strategic Governance and International Initiatives. *Educating the Educators on Environmental Policy*, Nov 19-20, Jacksonville, FL.

Spector, B., Leard, C., & Wilson, W. (2004). Southeast Association for the Education of Teachers of Science, *The Centers for Ocean Sciences Education Excellence (COSEE) and Science Teacher Educators: How Should We Work Together?* October 22-23, Gainesville, FL

Spector, B., & Leard, C. (2004). Southeast Association for the Education of Teachers of Science, *Rock the Boat! An Adventure in Collaboration (A COSEE-SEACOOS Initiative)* October 22-23, Gainesville, FL

Spector, B., & Cook S. B. (2004). NASA Earth Systems-Sun Roadmap Conference , Asilomar CA. Poster: *The Centers for Ocean Sciences Education Excellence (COSEE) Network: A National Collaborative of Educators and Ocean Scientists*

Spector, B. (2004). American Geophysical Union Fall Meeting. *Scientists Interacting with University Science Educators*. San Francisco, CA. Dec. 13-17 (poster)

### **2003**

Lambert, J. (2003, April). Improving student motivation through the teaching and learning of marine science. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA. Refereed based on paper.

## COSEE SouthEast

**2010**

**NMEA (National Marine Education Association). Spence, L. IOOS and Building BOB.**

COSEE SE Extending Ocean Science Concepts Mission: Ocean Observing and STEM applications

**NMEA (National Marine Education Association) Vernon Bell, E. Seas of Change: Exploring Southeastern Climate Change.**

EV Bell has coordinated COSEE SE Institutes on climate change and this represented some of our best resources and lessons.

COSEE SE Extending Ocean Science Concepts Mission: Southeastern evidence of climate change (acidification, temperature, sea level, storms) and STEM applications

**NMEA (National Marine Education Association) Kirby Hathaway, T and A. Bliss. Our Amazing Coast: Elementary Grade Level Lessons for Southeastern Coastal Habitats and Ecosystems.**

COSEE SE Extending Ocean Science Concepts: Engaging elementary teachers and students in coastal environments and issues.

**NMEA (National Marine Education Association) Bliss, A., Application of Community of Practice: Estuary Network.**

COSEE SE Extending Ocean Science Concepts: Describing the process to sustain engaging teachers, scientists and students in coastal environments and issues.

**NMEA (National Marine Education Association) Sweeper D. and L. Spence. A Day in the Life of Dr. Just**

COSEE SE Diversity Mission: E.E. Just was a 19<sup>th</sup> -20<sup>th</sup> Century Marine Biologist and African American from Charleston who was challenged by US racism.

**GAME (GA Association of Marine Educators). Bliss, A. Human Impacts on Coastal Estuaries**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks.

**GSTA (GA Science Teacher Association). Bliss, A. Human Impacts on Coastal Estuaries.**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks.

**NOSC, Savannah, GA Bliss, A. Estuary Network.**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks..

**LGSG (Land Grant/Sea Grant) Human Impacts on Coastal Wetlands, Hilton Head, SC. Bliss, A. Coastal Legacy: COSEE SE Professional Development.**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks.

**NSTA (National Science Teacher Association). Bickerstaff, S and E. Vernon Bell. Broadening Participation of Rural Students with Estuarine Scientists.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research.

**ASTE (Association for Science Teacher) Vernon Bell, E. SeaSeekers: Innovative Strategies to Broaden Participation in the Ocean Sciences for Middle School and Undergraduate Students.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research.

## **2009**

**SCMEA (SC Marine Education Association) Spence, L. Turning the Tide on Trash.**

Spence has a long history of marine debris and is credited with the NC Big Sweep start. She has received two NOAA awards to work with issues and has engaged scientists on plastics in the environment. COSEE SE Transferring Science Concepts and Citizen Science: Issues of marine debris

**SCMEA, Spence, L Diversity in the ocean sciences workshop—challenges and barriers.**

COSEE SE Diversity Mission: Reviewing results of regional survey on diversity in ocean sciences workplace.

**NMEA (National Marine Education Association). Spence, L. Ocean Circulation & Ocean Literacy. Currents Anyone?**

COSEE SE has been engaged with the southeastern ocean observing systems since 2002.  
COSEE SE Transferring Ocean Science Concepts: Ocean observing information and how it relates to ocean literacy principles.

**NMEA (National Marine Education Association) Spence, L. R. Fortner. From Sea to Inland Sea: Value of COSEE Teachers Exchange. Coastal and GL Partnerships.**

COSEE SE Cross Center Efforts: Building COSEE Network connections through workshop exchanges.

**NMEA (National Marine Education Association) McMillan, K and D. Sweeper. Carolina Gold Rush**

COSEE SE Diversity and Science Concept Transfer Mission: The rice impoundments and future of SC wetlands and African Legacy in the Lowcountry of SC.

**GAME (GA Association of Marine Educators). Bliss, A. Bioaccumulation in SAB Food Webs.**

COSEE SE Transferring Ocean Science Concepts: Modification of a project EARTH lesson from MBARI for the southeast.

**GAME (GA Association of Marine Educators). Bliss, A. Defining Ocean Literacy.**

COSEE SE Transferring Ocean Science Concepts: Introduction of Ocean Literacy Essential Principles and their alignment with GA standards.

**SC2 (SC Science Council). Vernon Bell, E and S Bickerstaff. SeaSeekers: Connecting Students with Scientists; Connecting Rivers with the Ocean.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research.

**NCSTA (NC Science Teacher Association). Kirby Hathaway, Terri. Our Amazing Coast; Introducing Coastal habitats to Elementary Teachers.**

COSEE SE Extending Ocean Science Concepts: Target elementary students with ocean science concepts.

**MTS (Marine Technology Society). Spence, L. BOB & STEM Education.**

COSEE SE Extending Ocean Science Concepts Mission: Ocean Observing and STEM applications

**ASLO/TOS (American Society for Limnology and Oceanography) (The Ocean Society).  
Vernon Bell, E. Improving Ocean Literacy by Engaging Informal Science Education  
Facilities with COSEE SE Partnerships.**

COSEE SE Transferring Ocean Science Concepts: Strategies to engage ISE facilities with ocean scientists

**ASTE (Association for Science Teacher Education) Vernon Bell, E. Infusing Cultural  
Connections to Enhance Ocean Sciences Education: A professional development model for  
elementary and middle school teachers.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research

**SC Alliance for Black School Educators. Spence, L. Turning the Tide on Trash.**

COSEE SE Transferring Science Concepts and Citizen Science: Issues of marine debris

**SC Alliance for Black School Educators. Experiential Education: Vernon Bell. E. Last  
Child on the Beach.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission: Teachers, scientists and students in coastal environments and issues concern. Encouraging more experiential learning for multi cultural students.

**AEA (American Evaluation Association): Rauh, J. (USC) C.C. Yap (SCAD) Using  
Participatory Evaluation to Enhance Collaboration: Changing Evaluation Strategies at the  
Center for Ocean Science Education Excellence-Southeast (COSEE-SE)**

COSEE SE Extending evaluation innovations beyond the region.

**NAAEE (North American Association of Environmental Education). Bliss. A. Seas of  
Change: Climate Change Professional Development.**

COSEE SE Extending Ocean Science Concepts Mission: Southeastern evidence of climate change (acidification, temperature, sea level, storms) and STEM applications

**NAAEE (North American Association of Environmental Education). Bliss. A. Marine  
Debris; Turning the Tide on Trash.**

COSEE SE Transferring Science Concepts and Citizen Science: Issues of marine debris

**NAAEE (North American Association of Environmental Education). Kirby-Hathaway. T.  
Our Amazing Coast: Oceans for Elementary Students**

COSEE SE mission is to extend ocean sciences to elementary grades.

**NMEA (National Marine Educators Association) Bliss A., Maia McGuire, Lundie Spence, Paul Medders. Marine Debris: Turning the Tide on Trash.**

COSEE SE Transferring Science Concepts and Citizen Science: Issues of marine debris in se region

**GSTA (Georgia Science Teacher Association) Bliss. A. Teaching about Estuarine Impacts**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks.

## **2008**

**ASTE (Association of Science Teacher Educators) , St. Louis, MO, January 12, 2008, C. Thomas. Scientists in Science Education.**

COSEE SE Mission of engaging scientists in professional development programs.

**SCMEA (SC Marine Education Association. Sweeper D and K. McMillan. Tidal Creeks and the Cultural Connection**

COSEE SE Extending Ocean Science and Diversity Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks.

**NMEA (National Marine Education Association). Spence, L. Turning the Tide on Trash.**

COSEE SE Transferring Science Concepts and Citizen Science: Issues of marine debris in se region

**NMEA (National Marine Education Association) Vernon Bell, E. Jumping (Aboard) Ship: Key Components to Vessel Based Education.**

COSEE SE Mission of promoting educational strategies that are experiential.

**GAME (GA Association of Marine Educators). Olsen, M, A. Hurricanes & Storm Surge. Estuary/Wetland Curriculum.**

COSEE SE Transferring Science Concepts, coastal ocean observing information transfer and Citizen Science

**GSTA (GA Science Teacher Association). Olsen, M. Estuary/Wetland Curriculum. Bottoms Up Curriculum.**

COSEE SE Transferring Science Concepts from Broader Impacts Efforts

**NSTA (National Science Teacher Association). Spence, L. Ocean Circulation and Ocean Literacy.**

COSEE SE Transferring Science Concepts-- coastal ocean observing information

**ASLO/TOS (American Society for Limnology and Oceanography) (The Ocean Society). Spence, L. Underrepresented but not Forgotten: How to Increase Student Diversity in Marine Science.**

COSEE SE Extending Ocean Science Concepts and Diversity Mission—presentation of COSEE SE strategies of engagement.

**ASLO/TOS. Vernon Bell, E. Downhill Connections: How Does Development Impact Southeastern Watersheds?**

COSEE SE Extending Ocean Science Concepts Mission: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research.

**EEA GA Conference (Environmental Education Association Georgia). Olsen, M. Estuary/Wetland Curriculum.**

COSEE SE Extending Ocean Science Concepts: Teachers, scientists and students in coastal environments and issues concerns with impacts of growth in tidal creeks, nature of science and research.

**2007**

**NMEA (National Marine Education Association). Spence, L. Taking the Pulse of Our Coastal Ocean.**

COSEE SE Extending Ocean Science Concepts: Focus on ocean observing education.

**GAME (GA Association of Marine Educators). Olsen, M. Our Amazing Coast: Elementary Curriculum**

COSEE SE Extending Ocean Science Concepts to elementary educators.

**GAME Olson, M. Undersea Research and Technology (2 presentations).**

COSEE SE Extending Ocean Science Concepts from Broader Impacts efforts and STEM

**GSTA (GA Science Teacher Association). Olsen, M. Hurricanes.**

COSEE SE Extending Ocean Science Concepts: Focus on ocean observing education.

**GSTA Olson, M. Our Amazing Coast.**

COSEE SE Extending Ocean Science Concepts to elementary audiences

**AAAS (American Association for the Advancement of Science). Spence, L. Engaging K-12 Teachers and Science Education Faculty in Ocean Sciences.**

COSEE SE Extending Ocean Science Concepts and engaged science education research faculty.

**EEA Conference (GA). Olsen, M. Our Amazing Coast**

COSEE SE Extending Ocean Science Concepts—strategies to reach elementary educators.

**2006**

**SCMEA (SC Marine Education Association). Spence, L. Hurricanes and Storm Surge.**

COSEE SE Extending Ocean Science Concepts from ocean observing

**SCMEA Joyner, E. Coastal Legacy: Engaging Diverse Teachers through Ocean Sciences.**

COSEE SE Extending Ocean Science Concepts to diverse audiences—strategies to broaden participation

**NMEA (National Marine Education Association). Spence, L. Taking the Pulse of Our Coastal Ocean. COSEE SouthEast SECOORA Partnership.**

COSEE SE Extending Ocean Science Concepts from ocean observing

**NMEA (National Marine Education Association) Joyner, E. Coastal Legacy: Engaging Diverse Teachers through Ocean Sciences.**

COSEE SE Extending Ocean Science Concepts to diverse audiences—strategies to broaden participation

**GAME (GA Association of Marine Educators). Olsen, M. Ocean Circulation and Ocean Literacy.**

COSEE SE Extending Ocean Science Concepts from ocean observing

**GSTA (GA Science Teacher Association). Olsen, M. Ocean circulation and Ocean Literacy.**

COSEE SE Extending Ocean Science Concepts from ocean observing

**SC2 (SC Science Council). Spence, L. and E. Joyner. Hurricanes and Storm Surge in the Classroom.**

COSEE SE Extending Ocean Science Concepts from ocean observing

**AAAS (American Association for the Advancement of Science). Spence, L. and B. Spector. Interdisciplinary Science Reaches Out: The COSEE Model.**

COSEE SE Extending ocean science concepts and integrating scientists into education.

**ASLO/TOS (American Society for Limnology and Oceanography) (The Ocean Society). Spence, L. More Than a Pipeline.**

COSEE SE Extending Ocean Science Concepts to diverse audiences—strategies to broaden participation

**ASTE (Association for Science Teacher). Joyner, E. Infusing Cultural Connections to Enhance Ocean Sciences Education.**

COSEE SE Extending Ocean Science Concepts to diverse audiences—strategies to broaden participation

**AMS (American Meteorological Society). Gergantis, K and J. Nelson. Developing Extensions to Maury Project Modules to Enhance Teacher Utilization of the SEACOOS Web Site.**

COSEE SE Extending Ocean Science Concepts—ocean observing

**EEA Conference (GA). Olsen, M. Hurricanes**

COSEE SE Extending Ocean Science Concepts—ocean observing

**2005**

**SCMEA (SC Marine Education Association). Spence, L. Riding the Waves**

COSEE SE Extending Ocean Science Concepts—ocean observing

**NMEA (National Marine Education Association). Spence, L. Waves and Physics of Surfing. .**

COSEE SE Extending Ocean Science Concepts—ocean observing

**NMEA (National Marine Education Association). Olsen, M. Hurricanes and Storm Surge.**

COSEE SE Extending Ocean Science Concepts—ocean observing

**NMEA (National Marine Education Association). Olsen, M. Ocean circulation.**

COSEE SE Extending Ocean Science Concepts—ocean observing

**GAME (GA Association of Marine Educators). Olsen, M. Waves**

COSEE SE Extending Ocean Science Concepts—ocean observing

**GAME Olsen: Hurricanes**

COSEE SE Extending Ocean Science Concepts—ocean observing

**GSTA (GA Science Teacher Association). Olsen, M. Phytoplankton Monitoring.**

COSEE SE Extending Ocean Science Concepts and Citizens Science

**GSTA Olsen, M. Windows to Deep.**

**SC2 (SC Science Council). Spence, L. Ocean Circulation and Ocean Literacy.**

COSEE SE Extending Ocean Science Concepts and ocean observing with essential principles of ocean literacy.

**NSTA (National Science Teacher Association). Olsen, M. SouthEast Phytoplankton Monitoring.**

COSEE SE Extending Ocean Science Concepts and Citizens Science

**NSTA. Olsen, M. Undersea Research and Windows to the Deep.**

COSEE SE Extending Ocean Science Concepts through Broader Impacts Effort.

**MTS (Marine Technology Society). Spence, L. Coastal Ocean Observing Technology Transfer to Educators.**

COSEE SE Extending Ocean Science Concepts and ocean observing with essential principles of ocean literacy.

**AMS (American Meteorological Society). Gergantis, K. Understanding Hurricanes and Coastal Ocean Observing.**

COSEE SE Extending Ocean Science Concepts and ocean observing with essential principles of ocean literacy.

**EEA Conference (GA). Olsen, M. Ocean Circulation**

COSEE SE Extending Ocean Science Concepts and ocean observing with essential principles of ocean literacy.

**2004**

**ASLO/TOS Ocean Research Conference , Spence, LL, Thomas, CJ, Clair, JJ, and Olsen, M, Strategies for Connecting Ocean Scientists to Educators., Honolulu, HI, February 15-20, 2004.**

COSEE SE Extending Ocean Science Concepts through strategies of Broader Impacts..

**COOS, IOOS, and Education Workshop, NOAA Coastal Services, Charleston, SC, March 22-24, 2004. (Hosted by COSEE SE, Ocean US and NOAA CSC)**

COSEE SE Extending Ocean Science Concepts and ocean observing

**SCMEA (SC Marine Education Association) Spence, L. Dynamic Shorelines.**

COSEE SE Extending Ocean Science Concepts

**SCMEA Olsen, M. HABS and Phytoplankton monitoring.**

COSEE SE Extending Ocean Science Concepts and Citizens Science

**NMEA (National Marine Education Association). Spence, L. SouthEast COSEE SEPORTs Become “Passports to the Sea” for Informal Institutions.**

COSEE SE Extending Ocean Science Concepts through informal science institutions.

**GAME (GA Association of Marine Educators). Olsen, M. SouthEast COSEE SEPORTs Become “Passports to the Sea” for Informal Institutions.**

COSEE SE Extending Ocean Science Concepts through informal science institutions.

**GAME Olsen, M. Windows to Deep.**

COSEE SE Extending Ocean Science Concepts through strategies of Broader Impacts.

**MAMEA (MidAtlantic Marine Education Association). Kirby Hathaway, T. Catch the SECOSEE Wave.**

COSEE SE Extending Ocean Science Concepts through ocean observing.

**GSTA (GA Science Teacher Association). Olsen, M. SouthEast COSEE SEPORTs Become “Passports to the Sea” for Informal Institutions.**

COSEE SE Extending Ocean Science Concepts through informal science institutions.

**SC2 (SC Science Council). Spence, L. SouthEast COSEE SEPORTs Become “Passports to the Sea” for Informal Institutions.**

COSEE SE Extending Ocean Science Concepts through informal science institutions.

**SC Science Council (SC2) Olsen, M. Phytoplankton Monitoring**

COSEE SE Extending Ocean Science Concepts through Citizens Science projects.

**SC2 Olsen, M. Windows to Deep.**

COSEE SE Extending Ocean Science Concepts through strategies of Broader Impacts.

**NCSTA (NC Science Teacher Association). Olsen, M and L. Spence. SouthEast Phytoplankton Monitoring.**

COSEE SE Extending Ocean Science Concepts through Citizens Science projects.

**NCSTA Olsen, M SECOSEE Summer Institute.**

COSEE SE Extending Ocean Science Concepts through professional developing strategies.

**Ocean Research Interactive Observatory Networks (ORION)Workshop, San Juan Puerto Rico, January 4-8, 2004. Olsen, M and L. Spence Invited Participants**

**EEA Conference (GA). Olsen, M. What is COSEE SE. Estuary Activities.**

COSEE SE Extending Ocean Science Concepts through professional developing strategies.

**AGU Fall Meeting, San Francisco, CA. 12/04- -Helping Teachers Bring Ocean Sciences into the Science Classroom: The Role of the Centers for Ocean Science Education Excellence (COSEE) (Panel and discussion),**

COSEE SE Extending Ocean Science Concepts through professional developing strategies.

**2003**

**SCMEA (SC Marine Education Association. Spence, L. COSEE SE: A regional program for ocean sciences.**

COSEE SE Extending Ocean Science Concepts through professional developing strategies.

**GAME (GA Association of Marine Educators). Olsen, M. What is COSEE SE**

COSEE SE Extending Ocean Science Concepts through professional developing strategies.

**GAME. Olsen, M. Phytoplankton Monitoring Network**

COSEE SE Extending Ocean Science Concepts through Citizens Science strategies.

**Southeast Coastal Ocean Science Conference and Workshop; L. Spence, Poster Introducing COSEE SE. 01/27/03-01/31/03; Charleston, SC.**

**Invitational Conference on K-12 Outreach; 02/11/03-02/13/03; L Spence and C Thomas. Introducing COSEE SE. Research Triangle Park, NC.**

COSEE SE Extending Ocean Science Concepts

**NMEA (National Marine Educators Association ) Lundie Spence and Carrie Thomas, The Southeastern Center for Ocean Sciences Education Excellence, , Wilmington, NC, July 23, 2003.**

COSEE SE Extending Ocean Science Concepts as a NSF Center

**Oceans 2003 (ASLO/TOS) -Carrie Thomas and Lundie Spence, Southeast Center for Ocean Sciences Education Excellence: Building Connections Between Ocean Scientists and Educators Through Partnerships, San Diego, CA, September 24, 2003.**

COSEE SE Extending Ocean Science Concepts as a NSF Center

## COSEE New England

### 2006

Calabro, J., Zettler, E., Saucer, V., and Chen, R. "Populations and Ecosystem FOSS Activity." ASLO, Honolulu, February 20-24 2006.

Frashure, K.M., Chen, R.F., and Padawer, S., "The Ocean Science Education Institute (OSEI): Bridging Ocean Scientists and Educators." ASLO, Honolulu, February 20-24 2006.

Saucer, V., Decker, M., Steinback, J., Chen, R., Wilson, B., and Padawer, S., "Mud Snails-A Local, Marine Replacement in Diversity of Life, a FOSS module." ASLO, Honolulu, February 20-24 2006.

Padawer, S., Manna, P., and Urban-Rich, J., "Diversity and Plankton in the Classroom." Poster: ASLO, Honolulu, February 20-24 2006.

McWilliams, H. Anderson, J., Haddad, N., Cramer, C., and Baldassari, C., "Telling Your Story: Helping Ocean Scientists Participate in Outreach and Education That Focuses on the Importance of Ocean Research and Technology" Poster and Workshop: OCEANS '06, Boston Massachusetts, September 18-21, 2006.

### 2005

Maurer, S. N. and Chen, R.F. "Watersheds: Natural bridges for integrating disciplines in middle school learning." ASLO, Salt Lake City, February 20-25. 2005.

Brabander, D.J., Beattie, R.B., Chen,R.F., and Ford, D.J. "From inquiry in the schoolyard to the PowerPoint large lecture hall: Strategies for re-kindling curiosity about earth processes." ASLO, Salt Lake City, February 20-25. 2005.

Lavin, M., Strohschneider, D., Maichle, R., Frashure, K., Micozzi, N., and Stephen, R.A, The Waves and Tsunamis Project. Massachusetts Marine Educators Conference, Falmouth, MA, May 2005.

Lavin, M., Strohschneider, D., Maichle, R., Frashure, K., Micozzi, N., and Stephen, R.A, The Waves and Tsunamis Project. American Geophysical Union Fall Meeting, San Francisco, CA, 2005.

Thorrold, Andrea L.; Franks, Sharon E.R.; McDonnell, Janice; Peach, Cheryl L. "Ocean Sciences Education and Outreach: Identifying and Meeting Scientists' Needs." International Ocean Research Conference 2005.

Chen, R.F. and Frashure, K., "Engaging Ocean Science Researchers and Middle School Teachers in Excellent Ocean Science Curriculum Development: Ocean Science Education Institute (OSEI)." AGU, San Francisco, Dec. 13-17, 2005.

**2004**

Chen, R.F., Stevenson, R., and Glennon-Annoub, T., “An Inquiry-Based Middle School Activity Based on Chromophoric Dissolved Organic Matter (CDOM) Research.” The Ocean Research Conference, Honolulu, February 16-20, 2004.

Peri, F. and Chen, R.F., “Real-Time Monitoring of Chromophoric Dissolved Organic Matter (CDOM) and Water Quality in the Neponset River: Use In Local Schools.” The Ocean Research Conference, Honolulu, February 16-20, 2004.

Crago, T. “New England COSEE,” Northeast Regional Sea Grant Meeting, UNH, January 2004.

Smith, D. K., “NE-COSEE: How to Get Involved.” Sea Education Association Meeting, April 2004.

Levi, C. “The Well-Informed Matchmaker,” American Zoo and Aquarium Association Annual Meeting, New Orleans, LA, September 20, 2004.

Spitzer, W. “The COSEE Network's Involvement in Aquariums and Public Outreach.” American Zoo and Aquarium Association Annual Meeting, New Orleans, LA, September 20, 2004.

Spitzer, W. “Exhibits and More: How Scientists Can Partner with Aquariums and Science Centers.” American Geophysical Union, San Francisco, CA, December 14, 2004.

**2003**

Crago, T., Madin, K., and Thorrold, A. “The New England Regional COSEE Partnership,” National Marine Educators’ Association National Meeting, Wilmington, NC, July 21, 2003.

Chen, R.F., Crago, T., Padawar, S., Stevenson, R., Brabander, D., and Beattie, R. “Ocean Science Concept Mapping: What do People need to know about Ocean Sciences.” OCEANS 03, San Diego, September 22-26, 2003.

Chen, R.F., Levi, C., Spitzer, W., and Smith, D., and Thorrold, A. “New England Regional COSEE - Strategies to Involve Research Scientists in Ocean Science Education.” OCEANS 03, San Diego, September 22-26, 2003.

## COSEE Ocean Learning Communities

### 2010

**Anderson, A., Clay, T., & Keil, R. (2010, February).** *Ocean science graduate students: Nurturing the “growth points” in the E&O system.* Ocean Sciences Conference, Portland, OR. Presentation.

This presentation focuses on COSEE-OLC’s nurturing plan for young scientists (graduate students and post docs).

**Bell, P. (2010, April 20).** **Learning Science in Informal Environments. Keynote presentation as part of the Smithsonian's National Museum of Natural History "Beyond Diffusion" lecture series.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2010, February 20).** **Strands of Science Learning. Presented as part of the session: Learning Science in Informal Environments at the 2010 Annual Meeting of the American Association for the Advancement of Science (AAAS), Seattle, WA.**

Research presentation on multidimensional features of science learning that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P., Bricker, L. & Tzou, C. (2010, January 16).** **Supporting Pre- and Inservice Teacher Inquiry into How People Learn Science using Research Consensus Reports from the National Research Council. Paper presented at the Association from Science Teacher Education (ASTE) annual conference. Sacramento, California.**

Research presentation on culturally responsive instruction for preservice teacher educators that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P., Bruner, A., Caracol, A., Delgado, T. & Salazar, A. (2010, January 5)** **Strategies for Promoting More Diverse Participation in the Sciences. Presented at the COSEE-Ocean Learning Communities and Washington Sea Grant program “Addressing Broader Impact Requirements for Research Proposals.” Seattle, WA.**

Research presentation on how to broaden participation in the sciences made as part of a multi-day workshop for scientists on Broader Impacts developed by COSEE OLC.

**Bruner, A., & Clay, T.W. (2010, July).** **My Place in Puget Sound – Empowering students to action around overwhelming environmental issues. Presentation at National Marine Educators Association Annual Conference, Gatlinburg, TN.**

Focused on how high school students attitudes shifted in response to exposure of a placed-based marine science curriculum developed through collaboration among COSEE-OLC, SoundCitizen and OACIS GK-12, and how this model can be used by others to empower students around overwhelming environmental/marine issues.

**Clay, T.W., Anderson, A., & Keil, R. (2010, February). *Adapting the poster session to benefit scientists and the broader community*. Poster session presented at Ocean Sciences Meeting, Portland OR.**

Sharing model of scientist engagement in education and outreach used successfully by COSEE-OLC, including tips learned for scientists interested in sharing their research with a broader public.

**Keil, R. (2010, May). *SoundCitizen: An example of volunteer-lead broader impacts effort*. COSEE-NOW “Broaden Your Impact” Webinar Series.**

This presentation focuses on COSEE-OLC’s efforts in Citizen Science and our volunteer program SoundCitizen.

**Keil, R. (2010, May). *Spicing up the waterways of Puget Sound*. Invited speaker at Seattle Aquarium Sound Conversations, Seattle, WA.**

This presentation focuses on COSEE-OLC’s efforts in Citizen Science and our volunteer program SoundCitizen.

**Keil, R., Clay, T., Neibauer, J., Myers-Pigg, A., Kimball, B., (2010, February). *Geochemical studies of aquatic systems using a volunteer-based sampling network*, ED31-A 05. Presentation at Ocean Sciences Meeting, Portland, OR.**

This presentation focuses on COSEE-OLC’s efforts in Citizen Science and our volunteer program SoundCitizen.

**Kimball, B., Neibauer, J., & Keil R., (2010, February). *Geochemical studies of aquatic systems using a volunteer-based sampling network*, SCI051-03. Presentation at Ocean Sciences Meeting, Portland, OR.**

This presentation focuses on COSEE-OLC’s efforts in Citizen Science and our volunteer program SoundCitizen.

**Mathisen, J., Bullerdick, S., Sider, K., Freeman, P., Clay, T.W., & Anderson, A. (2010, February). *Looking for an eager audience for your research while satisfying your “broader impact” requirements?* Poster session presented at Ocean Sciences Meeting, Portland, OR.**

Focus is on the Center’s line of work connecting ocean/marine scientists with a marine volunteer community and scientist broader impacts.

**Scalone, G. & Bell, P. (2010, June). *Ideological Dimensions of Place: (re)creating an urban area*. In G. Scalone (organizer). Understanding the role of place in environmental education across settings. Symposium presented at the International Conference of the Learning Sciences (ICLS), Chicago, IL.**

This presentation represented learning sciences research from COSEE-OLC and described youths' understanding of place as they interact with maps of their communities to re-imagine local spaces.

**Sprenger, A, & Stahr, F. (2010, February). *Bringing ocean researchers, students and marine volunteers together through field research*. Presentation at Ocean Sciences Meeting, Portland, OR.**

Presentation focused on the collaboration with COSEE-OLC and how it has benefited non-scientists and scientists alike.

**Stromholt, S., Shouse, A., Bell, P. (June 2010). *Broadening Participation Through Scaffolding*. Poster presented at the International Conference of the Learning Sciences (ICLS), Chicago, IL.**

This research-based poster presented an analysis of afterschool program characteristics associated with science learning and identification processes for minority youth. The context is an afterschool apprenticeship program that leverages COSEE OLC initiatives related to citizen science marine research.

**Stromholt, S. (May 2010). *Broadening Participation Through Identity Development*. Poster presented at the inter-Science of Learning Centers Conference (iSLC), Boston, MA.**

This research-based poster presented an analysis of afterschool program characteristics associated with science learning and identification processes for minority youth. The context is an afterschool apprenticeship program that leverages COSEE OLC initiatives related to citizen science marine research.

**Tzou, C. (2010, June). *My Place in Puget Sound: Applying ethnographic findings about youths' sense of place in ocean sciences education*. In G. Scalone (organizer). Understanding the role of place in environmental education across settings. Symposium presented at the International Conference of the Learning Sciences (ICLS), Chicago, IL.**

This presentation described COSEE-OLC's curriculum development work as a product of collaboration between learning scientists, ocean scientists, and educators to put ocean science education within the context of local place and community-based action.

**Tzou, C. & Bell, P. (2010, May). *The construction of borders and implications for how place is constructed in environmental science education*. In E. Tan (Chair). Environmental Justice as Performative: Youth Negotiating the Intersections of Science, Justice, and Community.**

**Symposium presented at the annual meeting of the American Educational Research Association (AERA), Denver, CO.**

This presentation was to the largest national education research conference and represented learning sciences research from the COSEE-OLC center to describe how ocean and environmental science education can be designed to intersect with the lives of underrepresented youth.

**2009**

**Bell, P. & Anderson, A. (2009, April). *Developing models of interdisciplinary learning communities in ocean and environmental education*. In R. Duncan (chair). *Collaborations between scientists and science educators: The grand challenges and great opportunities of the Centers for Ocean Sciences Education Excellence*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.**

**Bell, P. (2009, November). *Broadening Participation in Science Education*. Presentation at the NSF Centers for Ocean Science Education Excellence (COSEE) PI Meeting. Washington, DC.**

Research presentation and facilitated session on how to broaden participation in the sciences made as part a COSEE Network Meeting.

**Bell, P. (2009). *Beyond the Classroom: Informal STEM Education Hearing, The Role Of Informal Environments And Experiences In The Learning Of Science*. Research and Science Education Subcommittee, Committee on Science and Technology, U.S. House of Representatives, 111th Congress.**

Congressional testimony given related to the release of the NRC volume *Learning Science in Informal Environments* where the work of the COSEE network was mentioned as an example of disciplinary focused STEM education work.

**Bell, P. (2009, February) *Learning Science in Informal Environments: People, Places and Pursuits*. Research Dissemination Forum at the Smithsonian Institution. Washington, DC.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2009, September). *How, Why and Where People Learn Science Outside of School: The Role of Informal Learning*. Invited presentation at the Burke Museum All Staff Meeting. Seattle, WA.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2009, August). *How, Why and Where People Learn Science Outside of School: The Role of Informal Learning*. Invited presentation at the Woodland Park Zoo. Seattle, WA.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2009, June 3). Learning Science in Informal Environments. Invited presentation for congressional and federal agency staff organized by the STEM Education Caucus. Washington, DC.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2009, May). *Method and Findings*. Plenary on effective evaluation of and research on COSEE at National COSEE Network Meeting, Hilton Head, SC.**

**Bell, P. (2009, April 17). Learning Science Across Places and Pursuits: The Contributions of Informal Environments. Presented at the American Educational Research Association (AERA) 2009 Annual Meeting, as part of the session “Multiple Organizational Structures, Audiences, and Outcomes in Informal Learning Settings”. San Diego, CA.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. Anderson, A. Robigou, V. & Tzou, C. (2009, April). Developing Models of Interdisciplinary Learning Communities in Ocean and Environmental Education. Presentation in COSEE session at National Association of Research in Science Teaching Annual Conference.**

**Bell, P., & Shouse A. (2009, March 20) What We Know About Learning Science in Informal Environments: Conclusions and Recommendations from the National Academies. Presentation at National Science Teachers Association (NSTA) National Conference on Science Education. New Orleans, Louisiana.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bullerdick, S., Clay, T., Sprenger, A., & Mathisen, J. (2009, July). *Building ocean learning communities in-person and online*. Presentation at Northwest Aquatic and Marine Educators Annual Conference, Vancouver, CAN.**

Focus is on the Center’s line of work building ocean learning communities with scientists, marine volunteers and educators both in-person and via a website.

**Clay, T.W., Waters, R., Halverson, C. & Anderson, A. (2009, October). *Development and implementation of the Communicating Ocean Sciences Program*. Presentation at the North American Association of Environmental Education Annual Conference, Portland, OR.**

Sharing of the development of the communicating ocean sciences program by COSEE-CA and describing the implementation of this program by COSEE-OLC in the University of Washington School of Oceanography.

**Clay, T.W., & Bullerdick, S. (2009, July). *Building a learning community: Connecting ocean scientists and marine educators*. Presentation at National Marine Educators Association Annual Conference, Pacific Grove, CA.**

Focus is on the Center's line of work connecting ocean/marine scientists with a marine volunteer community and scientist broader impacts.

**Keil, R. (2009). *Sound Citizen: A social and environmental experiment open to K-16 students and volunteers*. ESSEA Conference.**

A description of Sound Citizen and a call to action to develop sustainable practices with regard to ocean resources.

**Keil, R. (2009). *SoundCitizen: Spices in the Sound*. Plenary Speaker at Friends of the Cedar River Watershed Annual Dinner, Seattle, WA.**

This presentation focuses on COSEE-OLC's efforts in Citizen Science and our volunteer program SoundCitizen.

**Keil, R (2009, June). *SoundCitizen: Students and citizens working together to conduct significant science*. Science on tap, Seattle, WA. Link: <http://kcts9.org/series/science-caf%C3%A9/video/cooking-spices-puget-sound>**

This presentation focuses on COSEE-OLC's efforts in Citizen Science and our volunteer program SoundCitizen.

**Keil, R., Neibauer, J., Kimball, B., Clay, T., Tzou, C., Scalone, G., Bruner, A., & Bell, P. (2009, November). *The most abundant cooking spice in Puget Sound is artificial Vanilla*. CERF Conference, Portland Oregon.**

This presentation focuses on COSEE-OLC's efforts in Citizen Science and our volunteer program SoundCitizen.

**Kimball, B. (2009). *Sound Citizen: An active connection between people and their environment*. Western Washington University Environmental Sciences Seminar Series, Bellingham, WA.**

This presentation focuses on COSEE-OLC's efforts in Citizen Science and our volunteer program SoundCitizen.

**Tzou, C.T., Scalone, G., & Bell, P. (2009, April). *How place is constructed for and by youth: Implications for learning pathways in informal and formal environmental education*. In C.**

**Tzou (chair). Place as a construct in science teaching, learning, and curriculum design: Implications for addressing culture and equity. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.**

This presentation represented learning sciences research from COSEE-OLC that described preliminary findings from ethnographic research around how ocean and environmental education intersects with the lives of traditionally underrepresented groups of youth in STEM.

**Tzou, C. & Bell, P. (2009, December). Construction of place in environmental education: Positioning, power, and the paradox of categories. In C. Brandt (organizer). The end(s) of science education? Situated practices of science learning for social/political transformation. Symposium presented at the annual meeting of the American Anthropological Association, Philadelphia, PA.**

This presentation represented learning sciences research coming from the COSEE-OLC center and described how ethnographic methods can inform the design of learning environments for underrepresented youth in ocean and environmental science education.

**Quinn, H. & Bell, P. (2009, October 27). A Core Ideas Framework for Standards: The NRC contribution. Presented at the Conceptual Framework for New Science Education Standards Meeting. Washington, DC.**

Research presentation on how, where, and why people learn science.

## **2008**

**Bell, P. (2008, November) How People Learn Across Formal and Informal Environments. Keynote presentation at the COSEE Communicating Ocean and Marine Sciences Workshop. Seattle, WA.**

Research presentation on how, where, and why people learn made to the COSEE OLC Marine Volunteer Community. It included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2008, November). Discovering and Supporting Children's Pathways in Learning Science In and Out of School. Keynote presentation at the Environmental Education Association of Washington Annual Conference "Generation Green: Sustainability Takes Root". Wenatchee, WA.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Bell, P. (2008, August 14). How People Learn Science with Technology. Keynote presentation at the NOAA Okeanus Explorer Education Summit. Seattle WA.**

Research presentation made to marine educators on how, where, and why people learn science with technology.

**Bell, P. (2008, August 1). Discovering and supporting successful pathways in children's science learning in and out of school. Keynote presentation at the Summer Teacher Institute on "Teaching Science Through Inquiry," IslandWood. Seattle, WA.**

Research presentation on how, where, and why people learn that included a showcasing of COSEE OLC research on the environmental learning processes of minority youth.

**Keil, R. (2008). *Environmental spices*. Luncheon speaker, King County Dept of Nat Resources.**

This presentation focuses on COSEE-OLC's efforts in Citizen Science and our volunteer program SoundCitizen.

**Tzou, C.T., Scalone, G., & Bell, P. (2008, June). *Developing a sense of place: Privilege, class and positioning in formal and informal environmental learning*. In L. Bricker (organizer), *Mapping the learning pathways and processes associated with the development of expertise and learner identities*. Poster session presented at the Eighth International Conference of the Learning Sciences (ICLS), Utrecht, the Netherlands.**

This was the initial presentation of learning sciences work from COSEE-OLC that described the use of place-based education to address issues of equity within ocean and environmental education.

## **2007**

**Bullerdick, S. (2007, July). COSEE: Building ocean learning communities. Presentation at Northwest Aquatic and Marine Educators Annual Conference, Astoria, OR.**

Focus is on Center efforts on building an ocean learning community with scientists and marine volunteers.

**Sider, K., Robigou, V., & Bullerdick, S. (2007). Outreach to environmental education groups in the region. Puget Sound Partnership – ECO-Net meeting.**

Overview of COSEE-OLC mission and efforts

## **2006**

**Sider, K. (2006, August). Asian Pacific Islander, Seafood Safety Conference.**

Outreach to the restaurant business community.

## COSEE Great Lakes

Note: COSEE GL has 11 leaders in 8 states. All are encouraged and expected to make multiple program presentations each year. The complete list is available in compiled Annual Reports to NSF. Those listed here are selected to show the range of audiences, meeting scopes, and geographic outreach we achieve. In most education practitioner conferences, abstracts are not assembled for general access but are used for presenter selection by program committees. If they are distributed, they are in hard copy or on CDs, and linking to them is often impossible. Full papers are rarely requested by practitioner conferences but may be an option in educational research conferences. All presentations listed are oral unless otherwise noted.

### International

**8<sup>th</sup> International Conference on Computer Based Learning in Science**  
**Fortner, R. W., Bruce Munson and Peter Tuddenham. 2007. Regional science education workshop online through The College of Exploration. Presented at the 8<sup>th</sup> International Conference on Computer Based Learning in Science, Heraklion, Crete. Conference theme: *Contemporary Perspectives on New Technologies in Science and Education.***

This international conference offered a venue to discuss the COSEE GL online workshops with other users of technology for science learning. Fortner is a regular contributor to this biennial conference.

### **International Association for Great Lakes Research**

2007 was the 50<sup>th</sup> annual conference on Great Lakes research. COSEE GL Presented many program elements and research. Conference description follows:

*“50 years of Great Lakes Research: Past, Present, and Future”* is the theme of this year’s conference, which promises to convey the global nature of IAGLR and its mission. Research topics reflect the exploratory nature of research on expansive systems like the Great Lakes. The conference will highlight multi-disciplinary research addressing the biological, physical, and socio-economic changes....

The scientific program consists of 528 contributed talks that will be presented within six concurrent sessions over the four-day conference. Talks have been organized around eight topical research themes (e.g., Ecosystems and Human Health, Biological Communities and Biodiversity, Physical Scaling and Ecosystem biogeochemistry).

In the Education and Outreach session:

### **Kim, C. and Fortner, R.W., Great Lakes Scientists’ Perceptions on K-12 Education Collaboration.**

Doctoral research on how scientists perceive educators and collaboration was reported. The research served as a baseline for COSEE GL efforts in building collaboration.

**Fortner, R.W., Munson, B.H. and Tuddenham, P. What's So Great About the Great Lakes? An Online Great Lakes Education Workshop Through the College of Exploration.**

The presentation reported on the first online workshop conducted by COSEE GL, including evaluation and demographics of participants.

**Domske, H.M. & Edwards, W.J., COSEE GL: Shipboard Education on the USEPA Lake Guardian.**

A COSEE GL staffer and a scientist reported on the first shipboard workshop conducted by the program. These workshops were to become the cornerstone of our impact on educators and scientists.

**Auer, M.T., C.A. Hagley and R.W. Fortner. COSEE GL Lake Superior Exploration Workshop: Linking scientists with educators.**

A scientist and two COSEE GL staff presented a report on the first land-based workshop, with evaluation and suggestions for future programs.

**POSTER: Martz, M.A. COSEE Great Lakes: Connecting Scientists, Educators and Students: Pennsylvania Efforts to Date**

Each of the 8 GL states had programs specific to its audience as well as responsibilities to the collective COSEE mission. This poster reported on innovations from Pennsylvania, where the COSEE staffer is a scientist.

**2007 COSEE GL School for Scientists**

These COSEE staff made oral presentations for scientists and graduate students in attendance:

**Sturtevant, R. & R.W. Fortner. Limno-Links: Why Great Lakes scientists should engage in educational outreach**

Presentation gave a rationale to scientists for participation in education venues and for working with educators.

**Fortner, R.W. & Stewart, S. Pedagogy and Standards 101.**

This presentation was a whirlwind tour of key principles of pedagogy and an overview of some standards likely to relate to the subject matter of scientists at the conference.

**Hagley, C.A & Sturtevant, R. Including education and outreach in your proposal – How to make it meaningful and make it happen.**

Two scientists on the COSEE GL staff presented information for their peers on how to achieve broader impacts.

**Domske, H.M. & Martz, M.A. Preparing For A Classroom Visit or Career Day Presentation.**

Scientists were given tips and tricks for successful classroom visits.

**McKinney, Tiah. Strategies for Successfully Targeting and Collaborating with Underrepresented Groups. [Tiah is a member of our Advisory Committee]**

Our African-American Advisor gave information for reaching and working with underserved groups.

**2009 IAGLR annual conference, Toledo OH, May. Education and Outreach session:**

**Goettel, R. and T. Hallesy Lake Michigan Exploration Workshop—Synthesizing Research for Classroom Application**

Leading educators synthesized information on scientist-educator collaborations in our workshop

**Domske, H.M. COSEE – GL: Shipboard Science on the *USEPA R/V Peter Wise Lake Guardian*.**

An outreach educator detailed the importance of immersion experiences to be found in a week aboard a research vessel.

**School for Scientists 2009 at IAGLR**

**Reutter, J.. (Scientist) , R.W. Fortner, and T. Bills (Teacher). What is Pedagogy and Why Should Scientists Care?**

A scientist, a teacher, and COSEE GL Director report on what scientists need to know and apply about pedagogy for success in interactions with educators.

**Koehler, N., Stewart, S., and Sieggreen, D. Teaching with the Great Lakes Observing System (GLOS)**

GLOS is the Observing System of buoys and satellite data for the region. Presentation demonstrated how the tools could be used to take science into classrooms.

**Stewart, S.1, Koehler, N.1, and Teisan, J. (Teacher), No Scientist Left Behind: Standards 101 (What Every Scientist Needs to Know About Education Standards).**

Introduced participating scientists to what education standards are and why teachers search for standards applications of materials they will use in the classroom.

**Goettel, R. Community Stewardship through Environmental Education-A Model Project**

Presentation of how a COSEE scholarship program evolved into a service-learning collaborative project with a local college.

**Manzo, L. (Advisory Committee member) Lake Erie Literacy Principles: How Pis Can Incorporate Literacy Principles and Outreach Components to Enhance Research Proposals** (with M. Huntley, B. Culler, H. Elmer, C. Riddle, & J. Jentes Banicki, all outreach specialists from state agencies in Ohio)

Lake Erie Literacy Principles were the precursors of GL Literacy Principles. This session reported on how they were developed by collaborating state agencies.

**Fortner, R.W., Reaching Hundreds with Online Great Lakes Workshops**

Presentation reported demographics of two College of Exploration workshops and logistics of program development.

**Hinchey Malloy, E.K. and J. Adams. Bringing the Great Lakes into the Classroom: Examples of COSEE-inspired Science Learning Environments.**

Two scientists show how their work engages teachers following a COSEE GL workshop.

**2011 IAGLR Conference, Duluth MN, May 30-June 3.**

All presentations listed are designed to focus on highlights of our Center of interest to scientists.

**Hagley, C.A., Fortner, R.W., Manzo, L. and Aguilar, C. Great Lakes Research Meets Great Lakes Education: Learnings from the COSEE Great Lakes Summit**

The culminating event for COSEE GL was an education summit for 60 key educators and scientists. This summarizes outcomes of that meeting. The last 2 authors are advisory committee members.

**Munson, B.H., Martz, M.A. and Shimek, S. Effective Scientist-Teacher Collaborations through COSEE Great Lakes**

At the GL Education summit a white paper was produced relating to efforts to enhance collaborations. This session reports on that synthesis of information.

**Stewart, S.R. and Lusch, D.P. (COSEE Scientist) COSEE Great Lakes: Scientists Who Have Made a Difference and Broadened Impacts**

Session is co-presented by an educator and a scientist. Provides examples of our broader impacts.

**Fortner, R.W. COSEE Great Lakes: Reaching Multiple Audiences for Science and Education**

Session reviews the types of groups reached by COSEE GL and how they were recruited. Retention success is reported to the extent known at the time of the presentation.

**Walters, H.D. and Fortner, R. COSEE Great Lakes: Findings of the Evaluation Study**

Innovative evaluations using a time-series of concept maps throughout weeklong COSEE workshops demonstrates cognitive gains as well as conceptual growth among educator participants.

**Manzo, L. (Advisor) and Fortner, R.W. Introducing the Great Lakes Literacy Essential Principles and Fundamental Concepts for Great Lakes Learning: An Educational Framework to Enhance Research Proposals (Poster)**

The poster includes all the Essential Principles and Fundamental Concepts for GL Literacy, and it will be a product that sees multiple uses after this international meeting.

**North American Association for Environmental Education (NAAEE) 2006:**

**Kim, C. and R.W. Fortner, 2006. Perceptions of cultural differences and collaboration among environmental scientists and educators. Proceedings of the Annual Conference of NAAEE. Published on CD-ROM as part of the Research Symposium.**

COSEE Staff presented a 1.5 day pre-conference workshop to introduce our curriculum and program opportunities. Six staff were involved in “Teaching about the Great Lakes Environment” and the programs sessions were later re-purposed as an online workshop with the College of Exploration.

**Sturtevant, R. and Fortner, R. COSEE GL Program Opportunities**

Poster: Domske, H.M and Fortner, R.W. Shipboard and shoreline science aboard the R/V Lake Guardian on Lake Erie.

**NAAEE November 2007, Virginia Beach:**

Fortner, R.W., Munson, B., & Tuddenham, P. COSEE Great Lakes Online Workshop: Inservice Education on the Desktop

Kim, C. and Fortner, R.W. Perceptions of Collaboration: A Comparison of Educators and Scientists for COSEE Great Lakes [Research Symposium]

Kim, C. and Fortner, R.W. Collaborating with scientists for Great Lakes and ocean education.

**NAAEE October 2010, Buffalo:**

**Fortner, R.W., Manzo, L., Domske, H., Edwards, W.J. Great Lakes Literacy: Linking teachers to the regional environment.**

This is a report on the COSEE CA subcontract. Dr. Edwards is a scientist who assists COSEE GL regularly.

## **National**

### **ASLO 2011:**

**Aguilar, C. and R. Cuhel. Scientist-Teachers and Teacher-Scientists: Transmitting the thrill of discovery through hands-on hypothesis-testing experiential research: A COSEE Supplement.**

**<http://www.sgmeet.com/aslo/sanjuan2011/viewabstract2.asp?AbstractID=9236>**

### **American Association for the Advancement of Science, 2007:**

Rosanne Fortner (COSEE GL) and Barbara Spector (COSEE FL) organized and chaired a session on “Interdisciplinary Science Reaches Out: The COSEE Model.” COSEE speakers at the symposium were:

Rosanne Fortner: Overview of the session and COSEE introduction

William Spitzer: A National Network for Ocean Science Education: Characteristics and Challenges

Janice McDonnell: Guidelines for Scientists Reaching Out to Education

Lundie Spence: University Science Educators and K-12 Teachers Engaging in Science

Eric Simms (for Craig Strang): Charismatic Content: The Oceans Integrate the Science

### **2010 Ocean Sciences meeting:**

**Kolodji, C. and Hoffman, J. (2010), COSEE Superior Creates Passion for Science, *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract ED34A-02**

Kolodji was a science teacher on the R/V Lake Guardian when Hoffman led the science for the on-the-water workshop. The co-presentation was the first time Hoffman had been to an Education session.

### **National Marine Educators Association annual conference 2007, Portland, OR:**

Manzo, L. and Makayenko, L. Playing in the mud, COSEE style [relates to analysis of benthic sediments)

Goettel, R. and Hallesy, T. Dive in and Enjoy COSEE’s Greatest of the Great Lakes!

### **National Marine Educators Association July 2008, Savannah, GA:**

Fortner, Tuddenham & Munson: Virtual workshop: The Great Lakes ROCK!

Bosiak, Kathy, [COSEE SouthEast Exchange teacher to COSEE GL] From Sea to Inland Sea.

Lyndsey Manzo [Advisory Committee], Aquatic life along the North Coast: Coming soon to a classroom near you!

Goettel & Hallesy: Community Stewardship through Environmental Education: A Model Project.

**National Marine Educators Association July 2009**, Asilomar [CA]:

Domske, H., Goettel, R. and K. Furlong. Educators and the Inland Seas: COSEE Great Lakes

*Furlong is a teacher from a COSEE workshop. This was her first national conference presentation.*

Goettel, R. and Domske, H. Classrooms Releasing Live Species into our Waters: A study on reducing risk of invasive species introductions.

Hallesy, T. and Goettel, R. Student Stewardship: Informing communities about proper disposal of unwanted medicine to protect our waters.

Manzo, L. [Advisory Committee], *From the Ocean to the Lake: Introducing the Lake Erie Literacy Principles*.

Lubner, J. Panel participant for “What’s New with COSEEs: Recently Funded COSEE Collaboration Projects,” reporting on Collaborative with Education Aquanauts.

Fortner, R.W., Marrero, M, and Payne, D. Research Upwellings: What is surfacing from current ocean literacy research?

**National Science Teachers Association (NSTA), 2007 Regional Conference**, Detroit: Great Lakes, Great Science: Bringing Great Lakes Science into Your Science/Technology Classroom [L. Manzo and M. Holtschlag, educator participants in '06 Guardian]

Ocean science: Do it on the Great Lakes! [R. Fortner, R. Sturtevant, E. Hinchey Malloy] Great Lakes Observing Systems [S. Stewart]

**NSTA 2009 National Conference**, New Orleans, LA:

From Sea to Inland Sea: COSEE teachers exchange coastlines for broader professional experience [R. Fortner & Lundie Spence]

Explorations: COSEE Great Lakes [B. Munson & R. Fortner]

Spice up your curriculum with a little *Fresh and Salt* [R. Goettel]

**Coastal GeoTools**, Myrtle Beach SC:

Hart, D.A., Hart, N., and Fortner, R.W., 2009, “Paddle-to-the-Sea Google Lit Trip,” poster.

**State**

Michigan Science Teachers Association, 2 presentations in 2006, 1 in each succeeding year

Michigan Earth Science Teachers Association, presentation in 2006.

Science Education Council of Ohio (SECO) 2008. Manzo: Dive into the Greatest of the Great Lakes [3-hour workshop using GOGL curriculum]. Three other presentations in 2007 and 2009.

Illinois Science Teachers Association Conference, November 10, 2007, Peoria, IL, Goettel & Hallesy, “Immerse Your Students in the Great Lakes”

Hoosier Association of Science Teachers [HASTI] Conference, Indianapolis Convention Center, February 7, 2008, Goettel & Hallesy, “Engaging Students through Innovative Service Learning”

HASTI conference for Indiana Science Teachers, Indianapolis Convention Center, February 6, 2009, “Spice up your curriculum with a little *Fresh and Salt*”

Environmental Education Association of Illinois Conference, May 16, 2008, Oregon, IL, Goettel & Hallesy, “Community Stewardship through Environmental Education—A Model Project”

National Park Service – Great Lakes Network Workshop: Making Connections Understanding the Differences in Our Cultures and Working Together to Bridge the Gaps, 12/2/08

Lubner, J. and S. Franklin. Wisconsin Society of Science Teachers: “Interested in a Science-Based Research Cruise on the Great Lakes?” March 2009

## COSEE Ocean Systems

### Presentations

#### **2010**

Scientist-Educator Partnerships to Enhance Rural Ocean Literacy (20-Mar-10) - National Science Teachers Association Meeting, Philadelphia, PA

Using Concept Maps To Teach Biological Oceanography (24-Feb-10) - 2010 Ocean Sciences Meeting, Portland, OR

Baiting the Hooks: Scientist-Educator Team Development Through Concept Mapping and Online Tools (24-Feb-10) - 2010 Ocean Sciences Meeting, Portland, OR

Meeting Ocean Scientist's Needs to Improve the Communication of Their Science Research: What COSEE-OS Has Learned (23-Feb-10) - Ocean Sciences Meeting, Portland, OR

#### **2009**

COSEE: The Oceans, They are A-Changin': How Might This Affect You? (21-Mar-09) - National Science Teachers Association National Conference, New Orleans, LA

#### **2008**

Climate Concepts: Meshing Cutting-Edge Research With Education (07-Nov-08) - 2008 New England Ocean Sciences Education Collaborative Ocean Literacy Summit, Boston, MA

COSEE-OS: Concept-Mapping Web Tools Put Ocean-Climate Resources at Your Fingertips (21-Jul-08) - National Marine Educators Association Conference, Savannah, GA

Overview of COSEE-OS Ocean-Climate Interactive, Concept Map Builder & Concept-Linked Integrated Media Builder (16-May-08) - New England Ocean Sciences Education Collaborative Meeting, Rye, NH

Review Status of COSEE.net: Building a COSEE Web (30-Apr-08) - COSEE Network Meeting, Catalina, CA

COSEE-Ocean Systems: Investigating Climate through Ocean Visualization & Inquiry (29-Mar-08) - National Science Teachers Association National Conference, Boston, MA

Creating Interactive Data Tools & Case Studies to Support Future Use of Satellite-Derived Salinity Data (4-Mar-08) - American Society for Limnology and Oceanography Ocean Sciences Meeting, Orlando, FL

#### **2007**

Aquarius & COSEE-Ocean Systems (06-Dec-07) - Maine Mathematics and Science Alliance "Climate Change and Technology" Conference, South Portland, ME

Building the COSEE Web Presence (07-Nov-07) - COSEE Council and National Advisory Committee Meeting, Washington, DC

COSEE-OS: Teaching Science by Ocean Investigation (25-Jul-07) - National Marine Educators Association Conference, Portland, ME

Best Education / Outreach Practices from Observing Systems: Applications to the Great Lakes and GLOS (10-Apr-07 through 11-Apr-07) - Great Lakes Observing System (GLOS) Symposium, Traverse City, MI

## **2006**

Investigating the Ocean-Climate System, Concept by Concept (14-Dec-06) - American Geophysical Union Fall Meeting, San Francisco, CA

Incorporating Ocean Sciences Into State Standards: New England Case Studies (04-Nov-06) - 2006 New England Ocean Sciences Education Collaborative Ocean Science Literacy Summit, Boston, MA

This Just In: Relating Cutting-Edge Research to OSL Principles (04-Nov-06) - 2006 New England Ocean Sciences Education Collaborative Ocean Science Literacy Summit, Boston, MA

Enhancing Student Learning in Science With Digital Resources (12-Oct-06) - Maine Mathematics and Science Alliance, South Portland, ME

COSEE-OS Overview (30-Jan-06) - NASA Earth Science Education Team Meeting, Washington, DC

## **Posters (\*indicate posters presented by graduate students):**

### **2010**

Interactive Tools for Creating Ocean and Climate Science Connections (31-Mar-10) - Society for Information Technology & Teacher Education International Conference, San Diego, CA

\*Exploring Informal Science Education Through Ocean Inquiry (25-Feb-10) - 2010 Ocean Sciences Meeting, Portland, OR

\*A Common Ground for Effective Science (24-Feb-10) - 2010 Ocean Sciences Meeting, Portland, OR

\*Regeneration in the Classroom: Linking Infaunal Injury and Ocean Literacy Using Integrated Concept Mapping (03-Jan-10) - Society for Integrative and Comparative Biology Annual Meeting, Seattle, WA

## **Workshops and Short Courses**

### **2009**

COSEE: The Oceans, They are A-Changin': How Might This Affect You? (20-Mar-09) - National Science Teachers Association National Conference, New Orleans, LA

### **2008**

COSEE-OS: Concept-Mapping Web Tools Put Ocean-Climate Resources at Your Fingertips (08-Oct-08) - Maine Science Teachers Association Fall Conference, Gardiner, ME

COSEE-Ocean Systems Online Tools (Jul-08) - NOAA Workshop: Earth as a System is Essential, Rye, NH

COSEE: Salting Away for Our Future: Resources for Understanding the Ocean's Role in Climate Change (28-Mar-08) - National Science Teachers Association National Conference, Boston, MA

### **2007**

Geosciences Centers and Facilities Education and Outreach Workshop (13-Mar-07 through 14-Mar-07) - National Science Foundation, Arlington, VA

Digital Library for Earth System Education (DLESE) (23-Feb-07) - Resource Review Process Meeting, Darling Marine Center, Walpole, ME

### **2006**

COSEE-OS Overview (10-May-06) - Climate Variability and Predictability (CLIVAR) - NASA Aquarius / SAC-D Workshop, Falmouth, MA

Education and Research: Testing Hypotheses (EARTH) (10-Jul-06 through 14-Jul-06) - COSEE Mid-Atlantic Conference: Taking the Pulse of the Ocean, New Brunswick, NJ

COSEE-OS Overview (23-Jan-06) - NASA Aquarius Education and Public Outreach Focus / Advisory Group Meeting, Denver, CO

## COSEE Alaska

### Presentations

#### 2010

*“Indigenous Contributions to Sustainability,”* Ray Barnhardt. Helped organize and co-chair poster session and oral presentations on the role of traditional knowledge in STEM research and education at the AGU in San Francisco on Dec. 15, 2010.

Hosted UBC doctoral student and provided support for place-based education theme at State Education Summit the week of Alaska Federation Convention in Fairbanks, Oct. 20, 2010.

Barnhardt, R. Participated in AISES science fair workshop at National Indian Education Association annual meeting in San Diego Oct. 8-10, 2010

Barnhardt, R. Participated in WGBH planning in Washington, D.C. for expanding Teacher’s Domain lessons around indigenous knowledge themes based on previous geosciences model

*Strategies for Culturally Relevant Marine Education about the Changing Ocean.* Marilyn Sigman and Nora Deans. Northwest Aquatic and Marine Educators Annual Conference. Florence, Oregon. July, 2010.

*Weaving Together Arctic Science, Place, People, and Education in Alaska.* Marilyn Sigman and Ray Barnhardt. International Polar Year Science Conference. Oslo, Norway. June, 2010. Poster presentation.

*The COSEE Alaska Project.* UAF School of Fisheries and Ocean Sciences Faculty Seminar. Molly McCammon, Michael Castellini, Nora Deans, Nicole Nelson, and Marilyn Sigman. Fairbanks, AK. April, 2010.

*COSEE Alaska: Ways of Knowing about Climate Change.* Marilyn Sigman and Nora Deans. National Science Teachers Association National Conference. Philadelphia, PA. March, 2010.

*Outreach and Education for the Alaska Ocean Observing System Field Experiment: Sound Predictions 2009.* Marilyn Sigman, Molly McCammon, Scott Pegau, Stephanie Hoag, and Alice Douwang. AGU 2010 Ocean Science Meeting. Portland, Oregon. February, 2010.

#### 2009

*COSEE Program Overview* by Marilyn Sigman to the Alaska Sea Grant Advisory Committee. Anchorage, Alaska. November, 2010.

*COSEE Alaska: ways of knowing and teaching about ocean climate change.* Part I: A Center for Ocean Science Education Excellence for Alaska by Marilyn Sigman and Nora Deans. Part II: Alaska Native Science Education and COSEE Alaska by Ray Barnhardt. Alaska Math and Science Teachers Conference. Juneau, Alaska. October, 2009.

### **Sponsored Workshops with COSEE Alaska Staff Involvement and Presentations**

#### **2010**

Bering Sea Ecosystem Workshop: scientist-educator professional development. October. Co-sponsored by COSEE Alaska, ARCUS, and the North Pacific Research Board, with a contribution of workshop facilitation services by Dr. George Matsumoto from the Monterey Bay Aquarium Research Institute. Anchorage, Alaska.

Alaska SeaLife Center Teacher Professional Development Workshop. Go with the flow. October. Co-sponsored by COSEE Alaska, Alaska SeaLife Center, and the National Park Service Ocean Alaska Science and Learning Center. Seward, Alaska.

2010 Rural Alaska Educator In-Service. Salmon-in-the-Classroom: connecting salmon to the community. September. Co-sponsored by COSEE Alaska, Alaska Sea Grant, Cooperative Extension Service – 4-H Fisheries, Natural Resources, and Youth Development Program, and the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game. Fairbanks, Alaska

Communicating Ocean Science Workshop. Alaska Marine Science Symposium, January. Co-sponsored by COSEE Alaska, North Pacific Research Board, and Alaska Ocean Observing System.

Ocean Acidification Adaptation, Research and Communication Workshop. Alaska Marine Science Symposium, January. Co-sponsored by COSEE Alaska, Alaska SeaLife Center, UAF School of Fisheries and Ocean Sciences.

#### **2009**

2009 Rural Alaska Educator In-Service. Salmon-in-the-Classroom: connecting local to global. October, 2009. Co-sponsored by COSEE Alaska, Alaska Sea Grant, Cooperative Extension Service – 4-H Fisheries, Natural Resources, and Youth Development Program, and the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game.

Communicating Ocean Science Workshop. Alaska Marine Science Symposium, January. Co-sponsored by COSEE Alaska, North Pacific Research Board, and Alaska Ocean Observing System.

### **Invited Participation in Workshops and Conferences**

AAAS Conference on Promoting Climate Change Literacy through Informal Education. February, 2010, San Diego, CA. Invited participation by Marilyn Sigman, COSEE Alaska Program Manager, and Laurie Stuart, Distance Delivery Education Program Director, Alaska Sea Life Center.

Google Earth (Ocean). Alaska Marine Science Symposium, January, 2010. Luncheon presentation and workshop on how to upload data and information by Charlotte Vick, Google

Earth (Ocean) Content Manager. Co-sponsored by COSEE Alaska, Alaska Ocean Observing System, and North Pacific Research Board.

**2008**

Communicating Ocean Science Workshop. Alaska Marine Science Symposium, January. Co-sponsored by COSEE Alaska, North Pacific Research Board, and Alaska Ocean Observing System.

## COSEE Pacific Partnerships

**2010**

**Carlin Morgan, K. (2010, September 29) Engaging Scientists for Public Outreach. A workshop presented at the International Zoo and Aquarium Educators Conference, Orlando, FL.**

Workshop focused on ways in which informal educators can partner with scientists for a variety of education and outreach activities

**Dover, L., and Rowe, S. (2010, September 15). Professional Development for Staff and Volunteers that Improves Interpretation. Presentation at the Association of Zoos and Aquariums Conference, Houston, TX.**

This presentation was in the Best Practices and Trends for Creating Interpretive Guest Experiences session moderated by COSEE-PP Co-PI Kerry Carlin Morgan.

Presentation on findings from the COSEE-PP evaluation and redesign of the Oregon Coast Aquarium's volunteer training program

**Schultz, S. (2010, July 7). Oregon Master Naturalist Coast Ecoregion: Sandy Beaches and Dunes. A workshop presented at the Northwest Aquatic and Marine Educators Conference, Florence, OR.**

Workshop piloting the Sandy Beaches and Dunes unit of the COSEE-PP Coastal Master Naturalist Program.

**Hodder, J. (2010, June 25). The Centers for Ocean Science Education Excellence (COSEE) Pacific Partnerships - A Collaboration between Marine Researchers and Community Colleges to Increase Ocean Literacy. Presentation at The Role of Two-Year Colleges in Geosciences Education and in Broadening Participation in the Geosciences planning workshop, Annandale, VA.**

<http://serc.carleton.edu/geo2yc/workshop2010/program.html>

Presentation on COSEE-PP activities that connect ocean scientists and community college faculty and students through collaborative professional development programs.

**Trowbridge, C. (2010, May 7). Oregon Master Naturalist Coast Ecoregion: An Introduction to Coastal Habitats. A workshop presented at the Oregon Shores Conservation Coalition Conference, Charleston, OR.**

Workshop piloting the Introduction to Coastal Habitats unit of the COSEE-PP Coastal Master Naturalist Program.

**Trimble, A., & Ruesink, (2010, April 30). Mariculture in our coastal zones examined through ecological science. Workshop presented at the annual meeting of the Northwest Biology Instructors' Organization Meeting, Ocean Shores, WA.**

<http://www.nwbio.net/meeting/index.html> or <http://www.nwbio.net/2010/schedule.pdf>

Workshop for community college faculty on current information on local and global mariculture growth, introduced species, environmental impacts, husbandry practices, and known ecological interactions. Background information, student readings, and lecture presentation materials provided to support a class session on the ecology of mariculture in a marine science/biology course.

**Dover, L. (2010, March 8), Promoting Ocean Literacy through Formal-Informal Education Partnerships. Poster presentation at the COSEE China Planning Workshop. Beijing, China.**

Poster presentation focused on COSEE-PP and Oregon State University programs that partner informal science education institutions with formal education programs to increase national ocean literacy.

**Rathmell, K., (2010, February 27). A glider named Phoebe: A resource for education and outreach. Oral session presented at the annual meeting of the Oregon Academy of Science, Portland, OR.**

Presentation to community college faculty on the use of autonomous underwater gliders in the Center for Coastal Margin Observation and Prediction (CMOP) research.

**Rathmell, K., (2010, February 27). What can Phoebe tell us about the Columbia Estuary and coastal waters of the Pacific Northwest? Special session presented at the annual meeting of the Oregon Academy of Science, Portland, OR.**

Presentation to community college faculty on CMOP glider data, its potential use in education, particularly in community college courses, and on career paths that students interested in this type of science might follow.

**Rowe, S. and Cone, J., (2010, February 25). Communicating about Ocean Science with Non-Scientists. A Town Hall Meeting at the Ocean Sciences Meeting, Portland, OR.**

<http://www.agu.org/meetings/os10/lectures/town-halls.php>

Presentation on the science and practice of effective science communication to help improve the ability of scientists and managers to communicate about science with non-scientists. The use of concept maps as a communication tool highlighted.

**Hodder, J., Rowe, S., Boehlert, G., Carlin Morgan, K., Gehrke, C., & Cheung, I. (2010, February 24). The Center for Ocean Science Education Excellence (COSEE) - Pacific Partnerships: Providing Opportunities for Ocean Scientists to Fulfill Broader Impacts that**

**Involve Community Colleges and Informal Science Education Professionals and Volunteers. Poster session presented at the Ocean Sciences Meeting, Portland, OR.**

Poster presentation on ways in which COSEE-PP assists ocean scientists in developing and implementing successful broader impacts activities with audiences that historically have been underserved by the ocean sciences community.

**Rowe, S., Carlin Morgan, K., and Barthel, C. (2010, February 24). Bringing Current Ocean Sciences and Communications Skills to Informal Science Educators. A poster presentation at the Ocean Sciences Meeting, Portland, OR.**

Poster presentation on COSEE-PP's work with ocean scientists and educators to develop, pilot, and evaluate model professional development programs for informal educators designed to teach content in conjunction with new communication skills.

**Boehlert, G. (2010, February). National Association of Marine Laboratories Meeting.**

Informal presentation to NAML on the activities of COSEE-PP and how marine laboratory scientists can be involved in these activities.

**2009**

**Wolf, M., Hodder, J., Rowe, S., Boehlert, G., Carlin Morgan, K., Gehrke, C., & Cheung, I. (2009, November 13). The Center for Ocean Science Education Excellence (COSEE) - Pacific Partnerships: Providing Opportunities for Marine Scientists to Fulfill Broader Impacts. Poster session presented at the Western Society of Naturalists Meeting, Monterey, CA.**

Poster presentation on ways in which COSEE-PP can assist marine scientists in developing and implementing successful broader impacts activities with audiences that historically have been underserved by the ocean sciences community.

**Gehrke, C., Cheung, I., & Hodder, J. (2009, November 2). Promoting Research Investigations in the Marine Environment: An Internship Program for Community College Students. Oral session presented at the Coastal and Estuarine Research Federation Meeting, Portland, OR.**

Presentation on COSEE-PP summer research internship experience program for community college students. Author Hodder was session co-chair of the session.

**Hodder, J., Murray, L., & Koepfler, E. (2009, November 2). Partnering Scientists and Educators to Increase Coastal and Estuarine Knowledge. Session Convener at the Coastal and Estuarine Research Federation Meeting, Portland, OR.**

<http://www.sgmeet.com/cerf2009/education.htm>

**Hodder, J., Rowe, S., Boehlert, G., Carlin Morgan, K., Gehrke, C., & Cheung, I. (2009, November 2). The Center for Ocean Science Education Excellence (COSEE) - Pacific**

**Partnerships: Providing Opportunities for Coastal and Estuarine Scientists to Fulfill Broader Impacts. Poster session presented at Coastal and Estuarine Research Federation Meeting, Portland, OR.**

Poster presentation on ways in which COSEE-PP can assist coastal and estuarine scientists in developing and implementing successful broader impacts activities with audiences that historically have been underserved by the ocean sciences community. Author Hodder was session co-chair of the session.

**McConville, S., Hessing-Lewis, M., & Hacker, S., (2009, November 2). Shoots and Blooms!: A mesocosm experiment assessing the effects of ulvoid macroalgal blooms on eelgrass (*Zostera marina*) in Pacific Northwest estuaries. Poster session presented at the Coastal and Estuarine Research Federation Meeting, Portland, OR.**

Poster presentation by a COSEE-PP PRIME community college student intern on research conducted during the summer program.

**Clay, T., & Gehrke, C., (2009, September). Overview of COSEE Network and West Coast COSEE Centers. Presentation at the Western Association of Marine Laboratories Meeting, Anacortes, WA.**

Presentation on the involvement of marine laboratories in COSEE-PP programs and activities.

**Rowe, S., Morgan, C., Carlin-Morgan, K., Ratliff, T., & Matlock, B. (2009, September). Striking the Balance: Redesigning Volunteer Training for Content and Interpretation at Oregon Coast Aquarium. A panel presentation to the Annual meeting of the Aquarium and Zoological Association, Portland OR.**

Panel Presentation at AZA highlighting findings from evaluation of volunteer training programs at AZA institutions.

**Trowbridge, C., Hodder, J., Wolf, M.; & Gehrke, C. (2009, May 1), Pacific Northwest Rocky Shore Biology Workshop and Field Trip. Workshop presented at the annual meeting of the Northwest Biology Instructors' Organization, Astoria, OR. [http://www.nwbio.net/2009/NWBIO\\_2009\\_schedule.doc](http://www.nwbio.net/2009/NWBIO_2009_schedule.doc)**

Workshop for community college faculty on rocky shore organisms and ecology. Lecture and field trip materials provided to support a class session and field trip in a marine science/biology course.

**2008**

**Hodder, J. & Gehrke, C. (2008, April 26), COSEE-Pacific Partnerships at the Oregon Institute of Marine Biology. Oral session presented at the annual meeting of the Northwest Biology Instructors' Organization, Salem, OR. <http://www.nwbio.net/2008/sessions.html>**

Presentation focused on opportunities for community college faculty and students through COSEE-PP. Participants suggested marine science topics/themes that would enhance their own understanding of ocean science, and would allow them to include more ocean science in their courses.

**Exhibits and Other**

**Gehrke, C. (2010, July 7-9), Exhibit booth at the Northwest Aquatic and Marine Educators Conference, Florence, OR**

Exhibit included flyers about COSEE-PP professional development programs and opportunities for informal science educator professionals and volunteers.

**Hodder, J., Gehrke, C. and Apple, J. (2010, April 30-May 2) Exhibit booth at the Northwest Biology Instructors' Organization Meeting, Ocean Shores, WA**

Exhibit included a poster and flyers focused on COSEE-PP opportunities for community college faculty and a brief survey on topics for a professional development institute in Washington

**Bullerdick, S. and Gehrke, C. (2009, October 7-10), Shared COSEE-OLC/PP exhibit booth at the North American Association of Environmental Educators, Portland, OR.**

Exhibit included flyers about COSEE-PP programs and opportunities for informal science educator professionals and volunteers.

**Gehrke, C. (2008, March 8), Exhibit booth at the Port Orford Ocean Resources Team Water Festival, Port Orford, OR.**

Exhibit included a poster and flyers focused on COSEE-PP programs and opportunities.

## COSEE Coastal Trends

### 2009

L. Murray, W.M. Kemp, J Testa, J. Bosch, C. Gurbisz, T. Carruthers. *Expanding the word on Hypoxia*. Coastal and Estuarine Research Federation Conference. Portland OR. Nov 2-6, 2009.

L. Murray, T. Carruthers, D. Gibson, C. Gurbisz, J. Woerner. *Understanding Trends in Coastal Ecosystems through Science-Education Partnerships*. Marine Technology Society Conference. Biloxi, MS. Oct 2009.

W. M Kemp, T. Carruthers, D. Gibson, W. Hall, C. Witherspoon, C. Gurbisz, L. Murray. *Understanding Trends in Coastal Ecosystems through Science-Education Partnerships*. Coastal and Estuarine Research Federation Conference. Portland OR. Nov 2-6, 2009.

McGlathery, K. J., Ksaizek, K., Reynolds, L. K., Schwarzschild, A., and Wilkerson, C., Carruthers, T., Murray, L. *Learning about Coastal Trends: Why are Seagrasses Important?* Coastal and Estuarine Research Federation Conference. Portland OR. Nov 2-6, 2009.

Ksiazek, K., Carruthers, T., K. McGlathery, L.K. Reynolds, E. Hinkle, A. Schwarzschild, C.

Wilkerson, C. Gurbisz, J. Woerner, and L. Murray. *The Seagrass Story*. National Association of Biology Teachers, Denver, November, 2009.

Murray, L. *COSEE: Coastal Trends in Seagrasses*. National Science Teachers Association. New Orleans, LA. Mar. 2009.

Wilkerson, Carissa N. *Working with COSEE Coastal Trends in a Scientist-Educator Partnership*. American Society of Limnology and Oceanography Nice, France. February, 2009

Burrell, C.T., B.E. Cuker, W.M. Kemp, J.M. Testa, J. Bosch. *The Effect of Seasonal Hypoxia Trends in the Chesapeake Bay and its Tributaries*. American Society of Limnology and Oceanography Nice, France. February, 2009

### 2008

Murray, L., L. Spence, A. Ward, D. Gibson. *Partnerships in Ocean Observing Systems Education: A Transfer Model*. American Society of Limnology and Oceanography. Orlando, FL. March 2008.

T. Carruthers, L. Murray, D. Gibson, W. Hall, C. Witherspoon. K Burns. *Coastal Trends Issues and the Formation of Science-Education Partnerships*. Poster presentation. American Society of Limnology and Oceanography. Orlando, FL. March 2008.

## COSEE Networked Ocean World

### Abstracts in Published Proceedings

#### 2010

Lyons, R., McDonnell, J., Bovitz, L. (2010). *Rutgers Climate and Environmental Change 4-H Teen Summit*. Children, Youth and Families At Risk Conference Proceedings. Page 63.

Myers, P., Cole, D., Kinsey, S., McDonnell, J., Powell, G. (2010). *4-H Climate Science Programming with At-Risk Youth*. Children, Youth, and Families at Risk Conference Proceedings. Page 58.

Kluchinski, D., Kinsey, J., Komar, S., McDonnell, J. (2010). *Adoption, Constraints and Opportunities for Use of Web 2.0 Technologies by Agricultural and Resource Management Professionals in New Jersey*. Proceedings of the 95th Annual Meeting and Professional Improvement Conference, National Association of County Agricultural Agents. Page 42.

El-Moslimany, H., Duncan, R.G., McDonnell, J., & Lichtenwalner, S. (2010). *The Design and Evaluation of Just-In-Time Teacher Supports in a Web-Based Environment*. In K. Gomez., L. Lyons, & J. Radinsky (Eds.) *Learning in the Disciplines: Proceedings of the 9th International Conference of the Learning Sciences*, Volume 2, 342-343, International Society of the Learning Sciences: Chicago IL.

#### 2009

Lyons, R. McDonnell, J., Bovitz, L. (2009). *Exploring the Crossroad between Civic Education and Citizenship*. The International Conference on Civic Education Proceedings. Page 12.

McDonnell, J., Lyons, R., Bovitz, L. (2009). *Exploring Climate and Environmental Change with New Jersey Teens and Rutgers University Scientists*. National Association of Extension 4-H Agents Conference Proceedings, Page 76.

Ripberger, C., Myers, P., Kinsey, S., DuBois, J., Pellien, T., McDonnell, J. (2009). *Science Explorations and Engineering Design Challenges with Urban Youth through 4-H Afterschool: A Multi-County Approach*. National Association of Extension 4-H Agents Conference Proceedings, Page 28.

Kluchinski, D., McDonnell, J., Komar, S., Kinsey, J. (2009). *Web 2.0 Technology Use by Cooperative Extension Professionals in New Jersey*. Proceedings, National Association of County Agricultural Agents, 94th Annual Meeting and Professional Improvement Conference. Page 183.

**Professional Presentations****2010**

Parsons, C. Kohut, J.T., Lichtenwalner, C.S. and Clark, H. (2010) *Collaborative Research and Education in the Ross Sea: A Broader Impact Evaluation Report*. AGU Fall Meeting, San Francisco, CA

Ripberger, C., McDonnell, J., Kinsey, S., Myers, P., Pellien, T., Harmon, M. (2010). *Connecting Youth to University Scientists: The Rutgers 4-H Summer Science Program*. Program Showcase at the National Association of Extension 4-H Agents Conference, Phoenix, AZ. October 24-28.

Gardner, K and Florio, K. (2010). *Ships, Oceans, and Satellites - S.O.S. (Opening a conversation about data in the classroom)* at the New Jersey Science Convention, Somerset, NJ, Oct 12-13

McDonnell, J., Bovitz, L., Lyons, R. (2010). *Exploring Climate & Environmental Change with New Jersey Teens and Rutgers University Scientists*. Program showcase at the National Association of Extension 4-H Agents Conference, Phoenix, AZ.

Myers, P., Cole, D., Kinsey, S., McDonnell, J., Powell, G., Torretta, A. (2010). *4-H Climate Science Programming with Urban Youth*. Program Showcase at the National Association of Extension 4-H Agents Conference, Phoenix, AZ.

Myers, P., Cole, D., Kinsey, S., McDonnell, J., Powell, G., Torretta, A. (September 2010). *4-H Climate Change Programming with At-Risk Youth*. Poster Session at the 2010 Rutgers Cooperative Extension Annual Conference, New Brunswick, NJ.

Kluchinski, D., Kinsey, J., Komar, S., McDonnell, J. (2010). *Adoption, Constraints and Opportunities for use of Web 2.0 Technologies by Agricultural and Resource Management Extension Professional in New Jersey*. Poster presentation at the National Association of County Agricultural Agents Annual Meeting and Professional Improvement Conference, Tulsa, OK.

Lyons, R. McDonnell, J., Bovitz, L. (2010). *Rutgers Climate and Environmental Teen Summit*. Program showcase at Children, Youth and Families At-Risk Conference, San Francisco, CA.

Myers, P., Cole, D., Kinsey, S., McDonnell, J., Powell, G. (2010). *4-H Climate Science Programming with At-Risk Youth*. Program showcase at Children, Youth, and Families at Risk Conference, San Francisco, CA.

McDonnell, J., Hotaling, L. (2010). *Linking the Ocean to the Classroom*. Presentation at National Science Teachers Association Meetings, Philadelphia, PA.

Yoder, J A, McDonnell, J, and Rom, E L. (2010) *presiding oral and poster session: Success and Challenges in Aquatic Observing Systems Education and Outreach I, & II*. Ocean Sciences Meeting, Portland OR. 8 oral papers and 8 posters.

McDonnell, J. (2010). *Broadening Your Research Impact: A Lunch Time Panel Discussion on Connecting Scientists and Educators to Improve Education and Public Outreach (EPO)*. Workshop at the Ocean Sciences Meeting, Portland, OR.

Glenn, S., Schofield, O., Kohut, J., McDonnell, J. (2010). *Assessing the Educational Impacts of Ocean Observatories*. Invited presentation at the Ocean Sciences Meeting, Portland, OR.

Parsons, C., and Kwon, P. and Kastler, J. (2010) *presiding oral and poster session: COSEE: Evaluations: What We've Learned and Implications for the Future I & II*. Ocean Sciences Meeting, Portland OR. 8 oral papers and 7 posters.

Parsons, C., McDonnell, J. (2010). *Ocean Scientists' Role and Needs Related to Education: A 6-Year Study*. Presentation at Ocean Sciences Meeting, Portland, OR.

Kohut, J., McDonnell, J, Parsons, C., Clark, H., Linder, C.A. (2010). *The Ross Sea Connection: Linking Broad Audiences to an Antarctic Ecosystem*. Presentation at Ocean Sciences Meeting, Portland, OR.

McDonnell, J. Parsons, C., Lichtenwalner, C.S., Clark, H. Lyons, R., Bovitz, L., Ripberger, C., Mikulak, S. (2010). *Building Effective Partnerships Among Scientists, Educators and Informal Science Institutions*. Presentation at the Ocean Sciences Meeting. Portland, OR.

Schofield, O., McDonnell, J; Glenn, S., Yoder, J. (2010). *NOW is the Time: Helping Scientists to Communicate Effectively. A Scientist's Perspective*. Invited presentation at the Ocean Sciences Meeting, Portland, OR.

Goldinger, D., Glenn, S., McDonnell, J, Schofield, O., Kohut, J. (2010). *Enabling Undergraduate Education through Ocean Observatories – A Student Viewpoint*. Poster presentation at the 2010 Ocean Sciences Meeting, Portland, OR.

Ferraro, C., McDonnell, J.; Duncan, R.; Lichtenwalner, C.S., Lathrop, R.G. (2010). *Developing Online Ocean Science Instructional Materials for Classroom Use: Lessons from the COOL Classroom*. Poster presentation at the Ocean Sciences Meeting, Portland, OR.

Shapiro, A. D., McDonnell, J., Lichtenwalner, C.S., Yoder, J.A. (2010). *Podcasting the Ocean*. Invited presentation at the Ocean Sciences Meeting, Portland, OR.

Lichtenwalner, C.S., McDonnell, J., Parsons, C., Dunbar, L., Glenn, S.M. (2010). *Creating Real-time Displays of Ocean Observing System Data for Classroom and Informal Use*. Presentation at Ocean Sciences Meeting, Portland, OR.

Kluchinski, D., Kinsey, J., Komar, S., McDonnell, J. (2010). *Adoption, Constraints and Opportunities for use of Web 2.0 Technologies by Agricultural and Resource Management Extension Professional in New Jersey*. Poster presentation at the National Association of County Agricultural Agents Annual Meeting and Professional Improvement Conference, Tulsa, OK.

Petrone, C.J., Hopper Brill, C. (2010). *Satellites, Storms, and Sounds*. Presentation at the National Marine Educators Association conference. Gatlinburg, TN.

Petrone, C.J. (2010) *Can't Take the Heat?* Presentation at the National Association of Science Teachers conference. Philadelphia, PA.

## 2009

Lyons, R., McDonnell, J., Bovitz, L. (2009). *Exploring the Crossroad between Civic Education and Citizenship*. A panel discussion at The International Conference on Civic Education., Nashville, Tennessee.

McDonnell, J., Lyons, R., Bovitz, L. (2009). *Exploring Climate and Environmental Change with New Jersey Teens and Rutgers University Scientists*. Poster at the National Association of Extension 4-H Agents Conference, Rochester, NY.

Ripberger, C., Myers, P., Kinsey, S., DuBois, J., Pellien, T., McDonnell, J. (2009). *Science Explorations and Engineering Design Challenges with Urban Youth through 4-H Afterschool: A Multi-County Approach*. National Association of Extension 4-H Agents Conference, Rochester, NY.

Kluchinski, D., McDonnell, J. D., Komar, S., Kinsey, J. (2009). *Web 2.0 Technology Use by Cooperative Extension Professionals in New Jersey*. Presentation at the National Association of County Agricultural Agents Annual Meeting and Professional Improvement Conference, Portland, OR.

Sprenger, A., Deans, N., McDonnell, J., Simoniello, C., Holt-Cline, A., Risien, C., Kerkering, H., Garbowski, M. (2009). *What Can the Integrated Ocean Observing Systems Offer Educators?* Presentation at National Marine Educators Association Meeting Monterey, CA.

McDonnell, J. Lichtenwalner, S., Gardner, K. (2009). *Becoming a Networked Ocean World through the Centers for Ocean Science Education Excellence*. Presentation at National Marine Educators Association Meeting Monterey, CA.

Parsons, C., McDonnell, J., Lichtenwalner, S. (2009). *Ocean Scientist's Role in Education: A Five-Year Study*. Presentation at National Marine Educators Association Meeting, Monterey, CA.

McDonnell, J, Golan, R. (2009). *Presiding for symposium: Collaborations between Scientists and Science Educators: The Grand Challenges and Great Opportunities of the Centers for Ocean Education Excellence (COSEE)*. Discussant: Dr. Rick Duschl, University of Pennsylvania, 5 papers. National Association for Research in Science Teaching (NARST) Garden Grove, CA.

Duncan, R. G., McDonnell, J. (2009). *COSEE-Networked Ocean World: Collaboration Around Curriculum Design and Implementation*. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), Anaheim, CA.

McDonnell, J. (2009) *Marine Activities Resources & Education (MARE)*, invited presentation. NSF SENCER Center for Innovation- Mid Atlantic Spring Conference. Rutgers University, New Brunswick, NJ.

Petrone, C.J. (2009) *Using Ocean Observing Systems in Education*. Presentation at the Mid-Atlantic Coastal Ocean Observing Regional Association annual conference. Portsmouth, VA

Petrone, C.J. (2009) *Can't Take the Heat?* Presentation at the Virginia Association of Science Teachers conference. Herndon, VA.

Petrone, C.J. (2009) *Can't Take the Heat?* Presentation at the Mid-Atlantic Marine Education Association conference. Lewes, DE.

Lawrence, L.A. (2009) *Coral Bleaching: A White Hot Problem*. Presentation at the National Marine Educators Association conference. Pacific Grove, CA.

Petrone, C.J. (2009) *Can't Take the Heat?* Presentation at the National Marine Educators Association conference. Pacific Grove, CA.

Petrone, C.J. (2009) *Don't Even Sink About it!* Presentation at the National Science Teachers Association conference. New Orleans, LA.

## **2008**

Yoder, J., Rom, E., and McDonnell, J. (2008). *Presiding oral and poster session. Education and Outreach in Ocean Observing Systems*. Oceans Sciences Meeting. Orlando, Florida. 14 oral papers and 5 posters.

McDonnell, J., Lichtenwalner, S. (2008). *Bringing the Ocean to your Classroom with the COOL Classroom*. Presentation at the National Marine Educators Association (NMEA) meeting, Savannah, GA.

Duncan, R. McDonnell, J., Glenn, S. (2008). *Developing Instructional Materials in Marine Science that Bring Real-Time Data into the Science Classroom: A Collaborative Model for Design*. Presentation at Ocean Sciences Meeting, Orlando Fl.

Schofield, O., Glenn, S., McDonnell, J. (2008). *Education and Outreach in a Network Ocean World*. Invited presentation, Ocean Sciences Meeting, Orlando Fl.

Lichtenwalner, C. S., McDonnell, J., Kohut, J., Glenn, S. (2008). *Translating Ocean real time data from the Rutgers Coastal Ocean Observation Lab to engage formal and informal audiences*. Presentation at Ocean Sciences Meeting, Orlando Fl.

Oowski, J., McDonnell, J. Glenn, S. (2008). *Engaging Observatory Scientists with the Public at Liberty Science Center*. Presentation at Ocean Sciences Meeting, Orlando FL.

McDonnell, J., Parsons, C. (2008). *Building Partnerships between Scientists and Educators: A Perspective from the Centers for Ocean Science Education Excellence – Mid Atlantic (COSEE MA)*. Presentation at Ocean Sciences Meeting, Orlando FL.

Parsons, C. and Sullivan, D. (2008). *Your website & U.S. Diversity: What the Research Literature Says about Multicultural Design*. Invited presentation at ASLO Ocean Sciences Meeting, Orlando FL.

McDonnell, J. Parsons, C. Lichtenwalner, C. (2008). *Tuna Anglers in the Online OOS World: A Pilot Study of How Usability Testing Can Guide the Development of OOS Data Products and Web Portals*. Meeting of the Mid Atlantic Coastal Ocean Observatory Regional Association (MACOORA) September 15, 2008.

Petrone, C.J. (2008) *Don't Even Sink About it!* Presentation at the Virginia Association of Science Teachers conference. Hampton, VA.

